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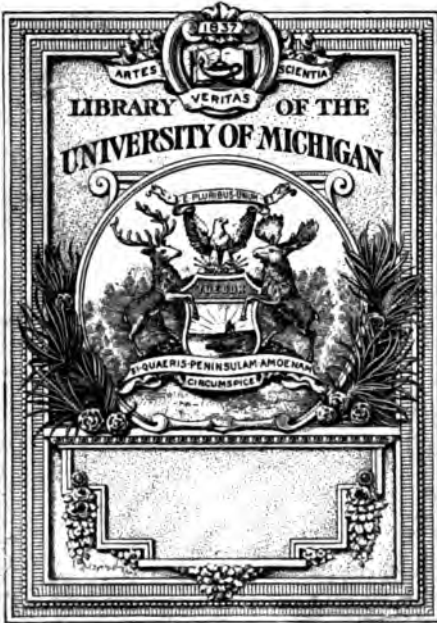
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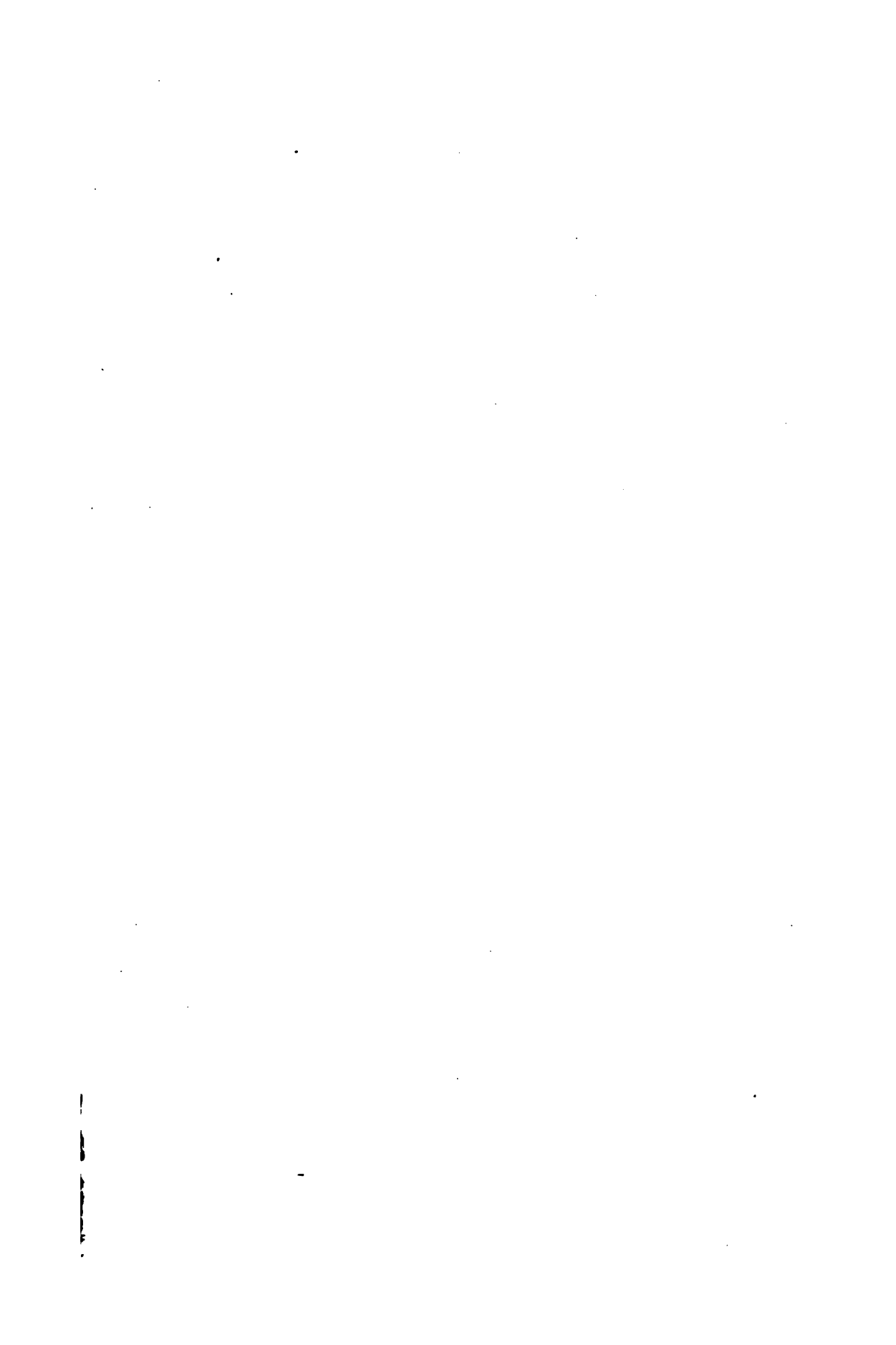
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No. 132.

SMITHSONIAN INSTITUTION.
UNITED STATES NATIONAL MUSEUM.

THE UNITED STATES NATIONAL MUSEUM:
AN ACCOUNT OF THE BUILDINGS OCCUPIED BY
THE NATIONAL COLLECTIONS.

BY

RICHARD RATHBUN,
*Assistant Secretary of the Smithsonian Institution,
in charge of the U. S. National Museum.*

From the Report of the United States National Museum for 1903, pages 177-309,
with twenty-nine plates.



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1905.



NORTH FRONT OF THE SMITHSONIAN INSTITUTION BUILDING.
From a photograph taken in 1871.

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INTRODUCTION.

The object of this paper is to briefly describe the history and character of the several buildings in which the science and art collections belonging to this Government have been housed and cared for, the time for such an account seeming especially opportune, in view of the recent beginning of an additional, larger, and more elaborate structure to meet the demands for increased space. No attempt is made to contrast the present accommodations with those provided elsewhere for a like purpose, only such criticisms being offered as are directly suggested by the buildings themselves.

The scope of the U. S. National Museum, as defined by acts of Congress, is exceedingly broad, including, besides natural history, geology, archæology and ethnology, the various arts and industries of man. Its development, resulting largely from Government explorations, has been greatest in the four subjects first mentioned. The collections illustrating the industrial arts, though now mainly in storage, are nearly as extensive in the amount of exhibition space required, and they can be rapidly enlarged and perfected as soon as a place is found for them.

Since the seventh decade of the last century the Museum has been continuously in a state of congestion, and with ever increasing accessions, it early became necessary to resort to outside storage, in which the amount of material is now extremely large. The demand for additional room, therefore, dates back over twenty years, being based partly on the need of placing these valuable collections under safe conditions and partly on the important requirement of bringing them into service by classification and arrangement. Last year an important step in this direction was realized—the passage of an act of Congress under which a more commodious and worthy building will speedily be secured.

As to the suitability for museum purposes of the existing buildings it may be said that the Smithsonian building was erected before much was known of museum needs, and it was moreover designed only in part for museum use. Its public halls, though exhibiting many important defects, have as a whole served their purpose well. The accommodations for laboratories and the storage of reserve collections are, on the other hand, very poor, being mainly found in basement and small tower rooms, inconvenient and badly lighted.

The Museum building, constructed soon after the Centennial Exhibition of 1876, primarily for the extensive collections brought to Washington from that source, was put up hastily and cheaply, and therefore not as substantially as was advisable. It is practically one great exhibition hall, since its partition walls are pierced at frequent intervals with broad and high arched openings. The lighting in the main is not unsatisfactory, though with a different roof construction it could be much improved. Here again, however, fault is to be found with the space available for workrooms and storerooms, since, having practically no basement, these rooms are confined to the towers and pavilions.

In planning the new granite building an opportunity is offered for correcting these faults. Good and convenient laboratories and storage rooms have been provided for, and it is intended that the exhibition halls shall show a decided improvement over those in the older structures.

The history of the buildings is briefly as follows:

In 1840 a society was organized in the city of Washington under the name of the National Institution, afterwards changed to the National Institute, among whose objects was the direction of the Smithsonian bequest, then under discussion by Congress, and the bringing together of collections in natural history, ethnology, and such other subjects as fall within the scope of a general museum. Its membership included many prominent persons, among them members of the Government and of Congress, which gave to the society a recognized position and secured to its purposes extensive quarters in the building of the Patent Office. Here were assembled the many valuable specimens brought home by the famous United States Exploring Expedition around the world, as well as others derived from both Government and private sources, which formed the nucleus of the present national collections, soon to pass under other control.

Under date of December 6, 1838, the President announced to Congress the receipt in this country and the investment of the Smithsonian bequest, amounting to a little more than half a million dollars, and also invited the attention of that body to the obligation devolving upon the United States to fulfill the objects of that bequest. During the seven and three-quarters years which ensued to the time of the actual

foundation of the Smithsonian Institution, this matter was constantly before Congress, the subject of numerous propositions and of extended debates. By the will of Smithson the city of Washington was to be the home of the establishment, but the character and extent of its buildings, as well as their site, depended upon the policy which Congress might adopt for carrying out the wishes of the benefactor, so tersely yet wisely expressed.

The bill which was finally passed and received the approval of the President on August 10, 1846, gave to the Smithsonian Institution the custody of the national collections, and provided for a site and building in the following terms:

AN ACT To establish the "Smithsonian Institution," for the increase and diffusion of knowledge among men.

SEC. 4. *And be it further enacted*, That, after the board of regents shall have met and become organized, it shall be their duty forthwith to proceed to select a suitable site for such building as may be necessary for the institution, which ground may be taken and appropriated out of that part of the public ground in the city of Washington lying between the patent office and Seventh Street: *Provided*, The President of the United States, the Secretary of State, the Secretary of the Treasury, the Secretary of War, the Secretary of the Navy, and the Commissioner of the Patent Office, shall consent to the same; but, if the persons last named shall not consent, then such location may be made upon any other of the public grounds within the city of Washington, belonging to the United States, which said regents may select, by and with the consent of the persons herein named; and the said ground, so selected, shall be set out by proper metes and bounds, and a description of the same shall be made, and recorded in a book to be provided for that purpose, and signed by the said regents, or so many of them as may be convened at the time of their said organization; and such record, or a copy thereof, certified by the chancellor and secretary of the board of regents, shall be received in evidence, in all courts, of the extent and boundaries of the lands appropriated to the said institution; and, upon the making of such record, such site and lands shall be deemed and taken to be appropriated, by force of this act, to the said institution.

SEC. 5. *And be it further enacted*, That, so soon as the board of regents shall have selected the said site, they shall cause to be erected a suitable building, of plain and durable materials and structure, without unnecessary ornament, and of sufficient size, and with suitable rooms or halls, for the reception and arrangement, upon a liberal scale, of objects of natural history, including a geological and mineralogical cabinet; also a chemical laboratory, a library, a gallery of art, and the necessary lecture rooms; and the said board shall have authority, by themselves, or by a committee of three of their members, to contract for the completion of such building, upon such plan as may be directed by the board of regents, and shall take sufficient security for the building and finishing the same according to the said plan, and in the time stipulated in such contract; and may so locate said building, if they shall deem it proper, as in appearance to form a wing to the patent office building, and may so connect the same with the present hall of said patent office building, containing the national cabinet of curiosities, as to constitute the said hall, in whole or in part, the deposit for the cabinet of said institution, if they deem it expedient to do so: *provided*, said building shall be located upon said patent office lot, in the manner aforesaid: *Provided, however*, That the whole expense of the building and enclosures aforesaid shall not exceed the amount of ———, which sum is hereby appropriated, payable out of money in the treasury not otherwise appropriated,

together with such sum or sums out of the annual interest accruing to the institution, as may, in any year, remain unexpended, after paying the current expenses of the institution. And duplicates of all such contracts as may be made by the said board of regents shall be deposited with the treasurer of the United States; and all claims on any contract made as aforesaid shall be allowed and certified by the board of regents, or the executive committee thereof, as the case may be, and, being signed by the chancellor and secretary of the board, shall be a sufficient voucher for settlement and payment at the treasury of the United States. And the board of regents shall be authorized to employ such persons as they may deem necessary to superintend the erection of the building and fitting up the rooms of the institution. And all laws for the protection of public property in the city of Washington shall apply to, and be in force for, the protection of the lands, buildings, and other property, of said institution. And all moneys recovered by, or accruing to, the institution, shall be paid into the treasury of the United States, to the credit of the Smithsonian bequest, and separately accounted for, as provided in the act approved July first, eighteen hundred and thirty-six, accepting said bequest.

SEC. 6. *And be it further enacted*, That, in proportion as suitable arrangements can be made for their reception, all objects of art and of foreign and curious research, and all objects of natural history, plants, and geological and mineralogical specimens, belonging, or hereafter to belong, to the United States, which may be in the city of Washington, in whosoever custody the same may be, shall be delivered to such persons as may be authorized by the board of regents to receive them, and shall be arranged in such order, and so classed, as best [to] facilitate the examination and study of them, in the building so as aforesaid to be erected for the institution; * * *

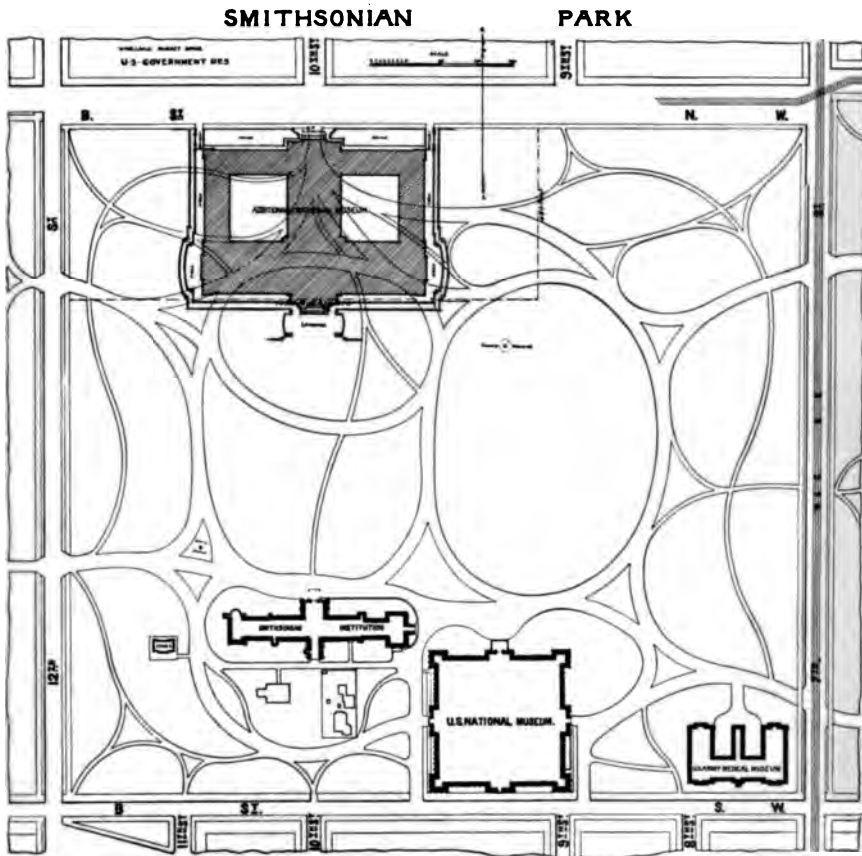
SEC. 7. *And be it further enacted*, That the secretary of the board of regents shall take charge of the building and property of said institution. * * *

(Statutes IX, 102. See also The Smithsonian Institution. Documents relative to its origin and history, 1835-1899. I, pp. 429-434.)

The Smithsonian building, as is well known, was placed upon the Mall. It was planned with reference to accommodations for a museum, a library, and other purposes, but the transfer of the specimens from the Patent Office did not take place until 1858, when Congress began to make small appropriations for the maintenance of the museum feature. The collections increased so rapidly that by 1875 they were occupying fully three-fourths of the Smithsonian building, and, in fact, all parts not actually required for the activities of the parent institution, the administrative offices, and the exchange service.

The Centennial Exhibition at Philadelphia, from which so large a quantity of valuable objects was acquired that they had to be stored provisionally in the so-called "Armory building," which they completely filled, led to the erection of the present Museum building. It proved inadequate from the beginning, and for many years new collections have been accumulating in outside rented buildings, mere storehouses of brick and wood.

After a lapse of twenty-five years Congress has again appropriated funds to extend the quarters, but this time on a far more liberal scale, which will permit of the erection of a much larger and more substantial structure, presenting a dignified exterior, in better keeping with the other permanent buildings of the Government. It will also stand



PLAN OF THE SMITHSONIAN PARK, SHOWING LOCATION OF THE PRESENT BUILDINGS, AND SITE OF THE NEW MUSEUM BUILDING, NOW IN COURSE OF ERECTION.

on the Mall, but along its northern edge, directly facing the Smithsonian building. Upon its completion, the Museum will be in occupancy of a group of three buildings, counting a part of the Smithsonian as one, and it may safely be predicted that none will long contain any vacant space.

THE SMITHSONIAN GROUNDS.

In a bill for the organization of the Smithsonian Institution, prepared by Representative John Quincy Adams, and presented to the United States Senate on February 18, 1839,^a provision was made for an astronomical observatory, to be erected under the direction of the Secretary of the Treasury upon land belonging to the United States, which, after its selection, should be granted for the purpose and conveyed as a deed of gift to the trustees of the Institution. The locality known as Camp Hill, near the banks of the Potomac River and the mouth of Rock Creek, opposite Analostan Island, seems to have been under consideration at that time. It was the same site that Washington had designated for the National University, and was subsequently used for the object Mr. Adams had in mind, but under the direction of the United States Naval Establishment.

In another bill, introduced in the Senate by Lewis F. Linn, on February 10, 1841,^b it was proposed that the entire tract known as the Mall be appropriated for the uses of the Smithsonian Institution, with the provision that the buildings should be erected in accordance with plans prepared by and under the supervision of the National Institution, to be approved by the President of the United States. In bills submitted to the same body in June and December, 1844, by the Library Committee, consisting of Senators Rufus Choate, Benjamin Tappan, and James McP. Berrien, appeared the first definite characterization of the building, which was to be placed upon a site to be selected in that portion of the Mall lying west of Seventh street.

The bill for the establishment of the Smithsonian Institution which finally passed Congress and received the approval of the President on August 10, 1846,^c was drafted by Representative Robert Dale Owen. The sections relating to the site and building are quoted on pages 183 and 184 of the introduction.

Upon the organization of the Board of Regents attention in regard to the site seems first to have been directed toward the Mall, and here its location was finally established, though not without some difficulties and delay, the choice being subject to approval by the President of the United States, the Secretaries of State, the Treasury, War, and the Navy, and the Commissioner of Patents. At a meeting of the Regents on September 9, 1846, the chancellor, the Secretary, and the

^a Senate bill 293, 1839.

^b Senate bill 245, 1841.

^c Statutes IX, 102.

executive committee, five in all, were constituted a committee on grounds and buildings, whose first report, submitted on November 30 of the same year, resulted in the passage of the following resolution:

That the Regents of the Smithsonian Institution do select and adopt as a site for their buildings so much of the Mall, in the city of Washington, as lies between Seventh street and the river Potomac, if the consent of the persons named in the fourth section of the act to establish the Smithsonian Institution for the increase and diffusion of knowledge among men be obtained thereto; and that upon such consent being obtained in due form, the Secretary is hereby instructed to cause the said ground so selected to be set out by proper metes and bounds.

On December 1 following the Board amended the above resolution by adding the following clause after the word Potomac:

Subject to the power of Congress to grant any portion of the same west of Fourteenth street to the Washington Monument Society for the purpose of erecting a monument thereon.

As consent to this proposition was not obtained, it was resolved by the Regents on December 9:

That a committee of three be appointed by the chancellor to confer with the President of the United States and the other persons named in the fourth section of said act, and ask their consent to the selection by said Regents of that portion of said reservation lying between Seventh and Twelfth streets west, in said city, as the site for the necessary buildings of said institution; and, if such consent be given—

It is further resolved, That said buildings be located thereon, and at least two hundred and fifty feet south of the centre thereof.

The committee designated consisted of Representatives Hough and Owen and Senator Evans, but failing in the object of their mission, the Board resolved, on December 23:

That the Regents of the Smithsonian do select and appropriate as the site for their buildings the south half of so much of the "Mall," in the city of Washington, as lies between Ninth and Twelfth streets.

The consent to this choice by the President and other persons named in the fourth section of the fundamental act was communicated to the Board on January 20, 1847, and the further provisions of the act were then carried out, namely:

And the said ground so selected shall be set out by proper metes and bounds, and a description of the same shall be made, and recorded in a book to be provided for that purpose, and signed by the said Regents, or so many of them as may be convened at the time of their said organization; and such record, or a copy thereof, certified by the chancellor and Secretary of the Board of Regents, shall be received in evidence, in all courts, of the extent and boundaries of the lands appropriated to the said Institution; and upon the making of such record such site and lands shall be deemed and taken to be appropriated, by force of this act, to the said Institution.

After the close of these proceedings, however, which at the time seemed to be conclusive and did finally prevail, the subject of a site was again reopened and led to further inquiries and considerations. These can best be told in the words of the late Dr. George Brown

Goode, as recorded in his paper on the Smithsonian Building and Grounds.^a

After the present site had been selected there appears to have been some dissatisfaction in regard to it; nor is this to be wondered at, since at that time the Mall was remote from the inhabited portion of the city, being a part of what was then known as "The Island," now called South Washington. This portion of the city was cut off by an old and unsightly canal running to the Potomac and crossed by simple wooden bridges at four points between the Capitol and the Potomac River. It was unfenced and waste, occupied from time to time by military encampments and by traveling showmen. After the completion of the east wing in 1850, when the first lectures were held in the Institution, the Regents were obliged to build plank walks for the accommodation of visitors. Indeed, with the exception of the Capitol grounds and those surrounding the Executive Mansion, the open places in the city were entirely unimproved.

Soon after the selection of the present site the question was reconsidered by the Board, and a committee appointed to obtain, if possible, another location. In the bill as it finally passed Congress permission had been given to locate the building on the space between the Patent Office and Seventh street, now occupied by the building used for the offices of the Interior Department. This was partly to enable the Institution to utilize for its collections the large hall in the Patent Office then assigned to the "National Cabinet of Curiosities," partly, no doubt, to secure a more central location. To obtain this ground, however, it was necessary to have the approval of the President of the United States and other public officials, which was not found practicable. The committee fixed upon Judiciary Square, an open space of rough ground, in which at that time the city hall (a portion of the present structure), the infirmary, and the city jail were located. Though the adjoining streets were entirely vacant, this site was regarded as much more accessible than the Mall.

A proposition was submitted to the common council of the city of Washington, that the site of the city hall should be resigned for the use of the Smithsonian Institution upon its offering to pay to the city \$50,000, a sum deemed sufficient to erect a building for the use of the city government upon the site south of Pennsylvania avenue, between Seventh and Ninth streets, now occupied by the Center Market. A bill was introduced into Congress, authorizing the Regents to purchase the city hall, but the common council refused to consider the proposition and the site of the Mall was used.

That part of the Mall appropriated to the Institution has been known as the Smithsonian reservation, while to the entire square between Seventh street and Twelfth street, west, including the reservation, the name Smithsonian Park has been commonly applied.

At their meetings of December 4, 1846, and January 28, 1847, the Regents appropriated a total sum of \$4,000 for grading, laying out, and planting the grounds of the Institution, under the direction of the building committee, which was also authorized to expend not over \$10,000 in the construction of a permanent fence around the grounds. The latter, however, was erected for less than \$500.

In 1848, the building committee entered into a contract with John Douglas, of Washington, to the extent of \$1,050 for inclosing the reservation with a hedge and for planting trees and shrubs. The

^a The Smithsonian Institution, 1846-1896. The History of its First Half Century, pp. 247-264.

architect of the building marked out the paths and roads and indicated the positions of the trees and shrubs, to comprise about 160 species, principally American. The surrounding hedge was to consist on each of the four sides, respectively, of pyrocanthus, osage orange, cherokee rose, and hawthorn. Although considerable progress in this work seems to have been made during the year, the contract was considered not to have been properly complied with, and it was canceled in 1849.

The same year, for the convenience of those who attended the lectures in the east wing of the Smithsonian building, a walk was built from Seventh street to the eastern gate of the grounds and the path from the Twelfth Street Bridge was repaired. In speaking of the considerable expense which such improvements outside the reservation entailed upon the Institution, Secretary Henry, in his report for 1849, said:

It is hoped that the authorities of the city of Washington will cause bridges to be erected across the canal and walks to be constructed through the public grounds, to facilitate the approach to the building, and that the Institution will not be expected to provide accommodations of this kind.

In their report for 1850, the building committee stated that up to the end of that year \$3,747.51 had been spent upon the grounds, and that probably little more expenditure on that account would be necessary. Portions of the roads about the building had been graded and many trees and shrubs set out. An appropriation having been made by Congress for the purpose, Mr. Andrew J. Downing, at the request of the President, was then preparing a plan for converting the entire Mall, including the Smithsonian grounds, into a landscape garden. If this plan were adopted, the Smithsonian lot would form part of an extended park, of which the Smithsonian building, by its site and picturesque style of architecture, would be a prominent and attractive feature.

In 1851, according to the report of the same committee, the Mall was in course of rapid improvement under Mr. Downing. The corporation of the city appropriated \$2,500 for an iron bridge across the canal at Tenth street, and a gravel walk was carried thence to the building. The Smithsonian reservation of 19 acres had been inclosed with a fence and planted with trees at an expense to the Institution of about \$4,000, but the execution of Mr. Downing's plan, at the cost of the General Government, would, in the view of the committee, render unnecessary any further disbursements by the Institution. Without surrendering the right of use of the reservation appropriated to the Institution, the partition fence between it and the other part of the Mall had been removed and the whole given in charge of Mr. Downing.

Although relieved at this period, and at its own request, of the care and improvement of its grounds, which have since remained under the

supervision of the officer in charge of public grounds, the Institution has always maintained a deep interest in the condition of its surroundings, and has in fact aided materially toward their betterment, as frequently noted in the reports of Secretary Henry and his successors.

In 1855 Professor Henry wrote that since the death of the lamented Downing but little had been done to complete the general plans of the improvement of the Mall proposed by him and adopted by Congress, although an annual appropriation had been made for keeping in order the lot on which the Smithsonian building is situated. Regret was expressed that Congress had not made an appropriation to promote the suggestion of Dr. John Torrey and other botanists of establishing here an arboretum to exhibit the various ornamental trees of indigenous growth in this country.

This scheme was never more than tentatively carried out, but in 1899 the Secretary of Agriculture revived the subject, in his annual report, from which the following extract is taken:

One of the needs of the Department is an arboretum in which can be brought together for study all the trees that will grow in the climate of Washington. The need of such an establishment was felt early in the history of the capital and was brought forward more than fifty years ago among the various plans proposed for the use of the Smithsonian bequest, which was finally devoted to the founding of the present Smithsonian Institution. In the report of the building committee of that Institution for 1850 the following statement occurs:

"Mr. Downing, the well-known writer on rural architecture, at the request of the President, is now preparing a plan for converting the whole Mall, including the Smithsonian grounds, into an extended landscape garden, to be traversed in different directions by graveled walks and carriage drives and planted with specimens, properly labeled, of all the varieties of trees and shrubs which will flourish in this climate."

This admirable plan, apparently from lack of financial support from Congress, was never systematically prosecuted, and the plantings at first made were so neglected that the nurse trees themselves are now being rapidly broken down and destroyed by storm, disease, and decay. When the grounds of the Department of Agriculture were laid out, in 1868, Mr. William Saunders, then, as now, horticulturist of the Department, established a small arboretum commensurate with the size of the grounds. An arboretum in this climate, however, requires an area of several hundred acres. The time has come when the economic needs of the Department and the education and pleasure of the people demand a rich collection of trees planted so as to secure the best effects of landscape art, furnishing complete materials for the investigations of the Department of Agriculture, and so managed as to be a perennial means of botanical education. We are now engaged in introducing useful trees from all parts of the world, such as those producing fruits, dyes, nuts, oils, and tans, those useful for ornamental purposes, and especially those promising shade, shelter, and fuel in the arid region.

At the present time we have no central place in which to plant and maintain a series of these trees for study and propagation. The importations must be sent out as fast as they are received, without any opportunity for our investigators to make any observations on their behavior under cultivation, and in the case of small and valuable importations subjecting the whole stock to the possibility of total loss. In view of these conditions, I wish to bring to the attention of Congress the importance

of placing at the disposal of this Department an area of suitable size and situation for a comprehensive arboretum. In order to give a specific basis for consideration of this project, I suggest that the area known as the Mall be set aside for this purpose.

“No part of the public domain,” said Professor Henry in 1856, “is more used than the reservation on which the Smithsonian building stands, but as yet no special appropriation has been made by Congress for continuing the improvement of the grounds, and it is to be regretted that years should be suffered to pass without planting the trees which are in the future to add to the beauty, health, and comfort of the capital of the nation.” In the same connection mention is made of the beautiful monument erected that year near the Institution by the American Pomological Society to the memory of Downing—a just tribute to the worth of one of the benefactors of our country. The adoption of his ornamental plan for the public parks of this city was in part due to the example of the Regents in embellishing the grounds around the Smithsonian building.

In 1858 Professor Henry remarked that—

The proposition to supply the public grounds with a complete series of American trees has long been contemplated, but as no appropriation has been made by Congress for this purpose, the Patent Office, conjointly with the Institution, has taken the preliminary steps by issuing a circular asking for seeds of every species of our forest trees and shrubs that would be likely to thrive in this latitude. This circular has been widely distributed, and it is hoped will meet with a favorable response from all who are interested in making more generally known, and in introducing into more extensive cultivation, the natural ornamental products of our own soil. The seeds are to be sent by mail to the Commissioner of Patents and placed in charge of the officers having the care of the public grounds.

In 1862 Professor Henry reported that the trees and shrubbery in the grounds were growing finely under the care of the commissioner of public grounds, B. B. French, esq. He also called attention to the city canal forming the boundary of the Smithsonian grounds on the north, and across the basin or widest part of which most of the visitors to the Institution had to pass. This basin, since the introduction of Potomac water, had become the receptacle of the sewage of the city, and was then an immense cesspool, constantly emitting noxious effluvia prejudicial to the health and offensive to the senses of all who approached the locality. Certain methods of abating the nuisance were suggested.

As before noted, the fence and hedge which originally marked the outlines of the Smithsonian reservation were removed in the time of Downing, thus destroying all visible traces of its limits. On the south this reservation is bounded by B street south, on the west by Twelfth street west. Its depth from B street is 759 feet 9 inches and its length from Twelfth street 1,086 feet 8 inches, its eastern line coinciding with the western line of Ninth street. Its area, therefore, amounts to about 825,590 square feet, or a little less than 19 acres.

The Smithsonian building occupies a central position in the reservation, its main entrance being on the axis of Tenth street extended. The Museum building, finished in 1881, stands 50 feet to the eastward of the Smithsonian building, with its front face nearly on a line with the rear face of the latter. It extends back to B street south, and on the east overreaches by about 65 feet the limits of the reservation. There still remains at the southwest corner of the reservation, bordering on B and Twelfth streets, sufficient space for another structure of smaller size than the Museum building, should it ever be considered advisable to make such use of it, but otherwise all new buildings must be placed outside of the reservation.

The Army Medical Museum, erected in 1886, at the corner of B and Seventh streets southwest, is the only other structure in the Smithsonian park, and further extensive building operations within this square must be carried to its northern side. Such action has been necessary in regard to the additional large building for the National Museum authorized by Congress in 1903, the center of which, like that of the Smithsonian building, will be on a line with the axis of Tenth street.

As to the present condition of the park it may be said that all traces of the old canal and creek have long since disappeared, and fairly good paths and driveways now lead to the Smithsonian and Museum buildings. Unfortunately, however, no improvement can be noted in regard to the trees and shrubs, which were to be made so prominent a feature. None have been planted for many years, and the older ones are dying out or being destroyed by natural causes, much injury having been produced by severe storms. There has been a constant trimming and cutting down, but no attempt to add or build up in this direction, and the general effect is of a park lacking care and cultivation.

THE SMITHSONIAN BUILDING.

HISTORICAL ACCOUNT.

In his account of the Smithsonian building and grounds,^a the late Dr. George Brown Goode has said:

That the Smithsonian Institution, before it could begin active operations, must have a home of its own, would doubtless have been regarded as a necessity by any one considering the requirements of the future. Richard Rush, however, appears to have been the first to state this idea in words, which he did in a letter addressed, November 6, 1838, to the Secretary of State, in response to a request of the President for suggestions in regard to the proper manner of carrying out the bequest. * * *

In bills introduced in the Senate in June and December, 1844, by the Library Committee—Rufus Choate, Benjamin Tappan, and James McP. Berrien—appeared the first definite characterization of the building, which was to be plain and durable,

^aThe Smithsonian Institution, 1846-1896: The History of its First Half Century, pp. 247 *et seq.*

without unnecessary ornament, and to contain provisions for cabinets of natural history and geology, and for a library, a chemical laboratory, and lecture rooms. * * * The cost was at that time limited to \$80,000. In 1846, however, the bill of Dr. Robert Dale Owen, without change of phraseology from those which had preceded it in regard to location and character of the structure, was adopted, but the limit of the cost was increased, and \$242,129, the exact amount of the Smithsonian interest which had at that time accrued, "together with any additional interest which might remain after paying the current expenses of the succeeding years," was designated for that purpose. * * *

From the very beginning Doctor Owen was the chief advocate of a large and showy building. In this matter he was supported by the sympathy of the people of Washington, and especially Mr. William W. Seaton, mayor of the city and one of the Regents, whose interest in the realization of the plan of Smithson undoubtedly did much at last to secure action from Congress. Outside of Washington there was much opposition to an expensive building, owing partly to the manner in which the bequest of Stephen Girard had been rendered for many years inoperative by the action of its trustees. * * * Dr. Owen, nevertheless, more than any other person at that time concerned in the establishment of the Institution, seems to have felt that much of its future success depended upon the erection of a building which should perform a legitimate duty in dignifying and making conspicuous the work of the organization to which it belonged. Scarcely anyone can doubt that Doctor Owen was right and that the usefulness of the Smithsonian Institution has been materially aided by the fact that its building has for fifty years been one of the chief architectural ornaments of the national capital.

1846 and 1847.

The first formal action of the Board of Regents, in respect to the building called for in the fundamental act, was the passage of a resolution on September 9, 1846, authorizing and instructing the Chancellor, Secretary, and executive committee—

to take such measures as may be deemed by them most proper to obtain plans for the erection of buildings, fulfilling all the conditions in reference to them contained in the law organizing this institution, and that said committee report such plan as they may approve to this Board at its next meeting; and, further, that said committee specially report in regard to the best material for said buildings, and to the best modes of warming, lighting, and ventilating the same, with estimates of the cost when constructed of different materials, etc.

The committee so organized consisted of Vice President George M. Dallas, chairman; Representatives William J. Hough and Robert Dale Owen, Gen. Joseph G. Totten, and W. W. Seaton, mayor of Washington.

A notice to architects, inviting competitive designs, was published in the Washington newspapers of September 22, 1846, and with the object of accumulating information that might guide the Board in the choice of a plan for the building, a subcommittee, consisting of Messrs. Owen, Hough, and Totten, visited the principal cities of the United States; examined many of their most noted structures; had conferences with several eminent architects; collected specimens of the best stone material, and obtained data regarding the cost of construction.

This subcommittee reported the results of their inquiries on November 30, 1846. After which the full—

committee unanimously selected out of thirteen plans that were submitted to them by some of the principal architects throughout the country, two by Mr. James Renwick, jr., of the city of New York, the architect of Grace Church, the Church of the Puritans, Calvary Church, and other structures in and near New York; and they recommended to the Board for adoption one of these, being a design in the later Norman, or, as it may, with more strict propriety, be called, the Lombard style, as it prevailed in Germany, Normandy, and in southern Europe in the twelfth century. The design comprises a center building, with two wings, connected with the main building by low ranges and a cloister. The entire front is 421 feet, and the extreme depth in the center, including the carriage porch, 153 feet. The height of the principal tower is 145 feet, and that of the main building, to the summit of the battlement, 58 feet. The design includes all the accommodations demanded by the charter, to wit: A museum, 200 feet by 50; a library, 90 feet by 50; a gallery of art, in the form of a T, 125 feet long; two lecture rooms, one of which is capable of containing from 800 to 1,000 persons, and the other is connected with the chemical laboratory; a committee room for the Board of Regents; a Secretary's room; a room for the effects of Mr. Smithsonian; a janitor's room, etc.

At a meeting of the Regents on January 23, 1847, the following resolution from the committee was brought up for consideration, but no action upon it was taken, namely:

That the Norman plan of a building for the Smithsonian Institution, furnished by James Renwick, jr., of New York, substantially as amended, agreeably to the suggestions of the committee, is approved and adopted by this Board.

On January 26, 1847, the chancellor submitted the following resolutions, which were read and laid upon the table:

Resolved, That in view of the vast field of knowledge, to the increase and diffusion of which the act of Congress directs the efforts and funds of the Smithsonian Institution, this Board deem it inexpedient and hazardous to appropriate to the erection of a building a larger sum than one hundred thousand dollars.

Resolved, That John Haviland, of Philadelphia, architect, be requested to state in writing, formally to this Board, whether he will undertake to erect a building upon the model of the central structure he has already planned and furnished to this Board, with slight changes of arrangement, which will embrace all the chief objects expressed in the act of Congress, for the sum of one hundred thousand dollars; said building to be of granite or sandstone.

Resolved, That the committee of three, hereinafter appointed, be authorized to confer with Mr. Haviland, and that, upon this Board receiving from him the written and formal undertaking mentioned in the foregoing resolution, they be authorized to engage his services as architect for the execution of his plan and to complete all the necessary contracts.

Mr. Alexander D. Bache, one of the Regents, submitted to the Board on January 27, 1847, two resolutions of similar import, the consideration of both of which was deferred. One of these was as follows:

Resolved, That in the opinion of the Board of Regents of the Smithsonian Institution it is unnecessary and inexpedient to expend, in erecting a building to meet the requirements of the act creating the establishment, from the principal of the fund of

two hundred and forty-two thousand one hundred and twenty-nine dollars referred to in the first section of the act, a sum exceeding one hundred thousand dollars.

The resolutions finally adopted preliminary to the work of building were agreed to by the Regents on January 28, 1847, nearly all being offered by Mr. Owen. The most important follow:

Resolved, That the Norman plan of a building for the Smithsonian Institution, furnished by James Renwick, jr., of New York, substantially as amended and reduced agreeably to the suggestions of the committee, is approved by this Board.

Resolved, That a building committee of three members of the Board, as provided in the fifth section of the act of Congress, be appointed, who are hereby authorized and empowered, on behalf of the Smithsonian Institution, to enter into contracts for the completion of the buildings; and that said committee have power to employ one or more persons to superintend the erection of the buildings and the fitting up of the rooms of the institution; and that the work shall be done to the entire satisfaction of the said superintendent or superintendents; and that the said superintendent or superintendents shall have power, and shall be required, to reject any of the material proposed to be employed, and also to object to inferior or insufficient work, and to direct its change, at his or their discretion.

Resolved, That in the performance of the duty intrusted to them, the building committee of three hereinbefore referred to shall give the contracts to the lowest bidder of good reputation, who shall give unexceptionable security, to the entire satisfaction of the committee, for the performance of said contracts; and such security shall in all cases be taken. No advance shall in any case be made; and fifteen per cent. of all payments shall be retained until the faithful performance of the work.

Resolved, That the building committee, after taking counsel with the Secretary, shall carefully revise the specifications of the plan furnished to this Board by the architect before entering into any contract; and if, after such examination, they shall be of opinion that any modifications of the said plan and specifications are necessary for the safety, durability, or better adaptation of the structure, they may incorporate these in the said specifications; but no addition to the dimensions of the building shall be made, nor any ornament of any kind added; and the said modifications shall have sole reference to the safety, durability, and adaptation of the building. And the whole amount of the contract for the said building, including the modifications above provided for, shall, under no circumstances, exceed the amount of the original estimates of the architect, to wit: the sum of two hundred and two thousand dollars, with a percentage not exceeding ten per cent. on the said sum.

Resolved, That the building committee be also authorized to contract for the warming and lighting of the building; provided that the contract for the above objects shall not exceed five thousand dollars.

Resolved, That the building committee be also authorized to contract for the fitting up and furnishing of the building of the institution; provided that the contract for the same shall not exceed twenty thousand dollars. * * *

And it being on the one hand desirable that a portion of the buildings to be erected by the institution be ready for use at an early day, and on the other hand it is essential to the solidity and durability of a structure of the size required to embrace all the objects specified in the act of Congress that its erection be gradual and not too rapidly hastened forward: Therefore—

Resolved, That the building committee be instructed to arrange the contracts for the buildings of the institution so that the wings of said buildings may be completed in two years from the present time, and the whole completed in five years.

Resolved, That the building committee be instructed, in the arrangement of the buildings, to extend the gallery of art throughout the western range and western



THE SMITHSONIAN INSTITUTION BUILDING, VIEWED FROM THE NORTHWEST.
From a steel engraving made in 1847.

wing, and to arrange two lecture rooms, and no more, in the building. Temporary arrangements shall be made to receive in the west wing of the building the library of the Institution, until the library proper be completed.

2. *Resolved*, That the building committee invite proposals for the construction of the exterior walls of the building of upper Potomac sandstone, of marble, of granite, and of blue gneiss, respectively, and adopt that one of these four named materials which shall be deemed to combine the requisites of cheapness, beauty, and durability.

The manner of providing for the cost of building and other matters relating thereto were explained by Secretary Henry in his report for 1850, in which he says that—

The law of Congress incorporating the Institution, while it did not forbid the expenditure of a part of the income for other objects, authorized the formation of a library, a museum, and a gallery of art, and the erection of a building, on a liberal scale, for their accommodation. It was, indeed, the opinion of many that the whole income ought to be expended on these objects. The Regents did not consider themselves at liberty to disregard the indications of Congress and the opinion expressed in favor of collections, and after much discussion it was finally concluded to divide the income into two equal parts, and after deducting the general expenses, to devote one-half to the active operations set forth in the plan just described and the other to the formation of a library, a museum, and a gallery of art.

* * * It therefore became absolutely necessary that the income should be increased, and in order to do this it was proposed to save the greater part of the \$242,000 of accrued interest which Congress had authorized to be expended in a building, by erecting at a cost not to exceed \$50,000 the nucleus of an edifice which could be expanded as the wants of the Institution might require, and to add the remainder to the principal.

Unfortunately, however, for this proposition, Congress had presented to the Institution the great museum of the exploring expedition, and a majority of the Regents, supposing it necessary to make immediate provision for the accommodation of this gift, had taken preliminary steps, previous to my appointment, to construct a large building, and, indeed, a majority of the committee to which the matter was referred had determined to adopt the plan of the present edifice. Strenuous opposition was, however, made to this, and as a compromise it was finally agreed to draw from the United States Treasury \$250,000 of accrued interest, and instead of expending this immediately in completing the plan of the proposed building to invest it in Treasury notes, then at par, and to finish the building in the course of five years, in part out of the interest of these notes, in part out of the sale of a portion of them, and also in part out of a portion of the annual interest accruing on the original bequest. It was estimated that in this way, at the end of five years, besides devoting \$250,000 to the building, the annual income of the Institution would be increased from \$30,000 to nearly \$40,000, a sum sufficient to carry out all the provisions of the programme.

It is to be regretted that * * * instead of the plan of a costly building there had not been adopted the nucleus of a more simple edifice, which could have been modified to meet the wants which experience might indicate.

The original estimate for the building, furniture, and improvement of the grounds was \$250,000, and could the actual cost have been confined to this sum all the results anticipated from the scheme of finance which had been adopted would have been realized at the end of five years. During the past year, however, it has been found necessary, for the better protection of the collections, to order the fireproofing of the interior of the edifice, at an increased expense of \$44,000. This additional draft on the funds can only be met by extending the time for the completion of the building, and even this will require the appropriation of a portion of the income which

ought to be devoted to other purposes. The active operations will suffer most by this draft on the income, since it will be made for the better accommodation of the library and the museum.

On February 5, 1847, it was resolved by the Regents—

That the building committee, in conjunction with the Secretary, be authorized to publish, in such form as they may deem most appropriate, one thousand copies of a brief treatise, to be entitled "Hints on Public Architecture," and to be illustrated with designs of the plan of the building adopted for the Smithsonian Institution, and, at the option of the committee, with any other designs that are the property of the Institution, provided that the cost of the same shall not exceed one thousand dollars, which sum is hereby appropriated for that purpose.

This allotment was subsequently increased to \$1,200. The work was prepared by Doctor Owen, with the assistance of Mr. Renwick, and was published in 1849, under the title "Hints on Public Architecture, containing, among other illustrations, views and plans of the Smithsonian Institution, together with an appendix relative to building materials. Prepared on behalf of the Building Committee of the Smithsonian Institution, by Robert Dale Owen, Chairman of the Committee." It is quarto in size, but does not belong to any of the regular series of Smithsonian publications.

The first building committee of three members, appointed on February 5, 1847, consisted of Mr. Robert Dale Owen, Mr. W. W. Seaton, and Gen. Joseph G. Totten. Changes were made in the composition of the committee from year to year, and after a brief period none of its early members remained. Reports were submitted annually to the Board of Regents up to the close of 1857. The work of the committee during 1847 was extremely arduous, comprising the selection of the stone for the building, the preparation of specifications, the making of contracts, etc., all of which was accomplished within an incredibly short space of time. Forty-one meetings were held during the year.

Various marble, granite, and freestone quarries within a moderate distance of Washington were examined, with the gratuitous assistance of David Dale Owen, a brother of the regent and a prominent geologist, and much information regarding them and the quality of their products was obtained. The inquiries embraced the chief marble and granite quarries of Maryland; the freestone quarries of Aquia Creek, Virginia, where the material for the older part of the Capitol, the White House, Treasury, and other public buildings in Washington had been secured; and the freestone quarries of the upper Potomac River, mostly in the vicinity of Seneca Creek, on the banks of the Chesapeake and Ohio Canal, about 23 miles above Washington.

The marble quarries of Maryland (mostly in the vicinity of Clarksville, about 13 miles from Baltimore) were found to yield two qualities of stone—one fine grained and of excellent quality, the other

somewhat coarse, highly crystalline, and inferior in quality, known as "alum limestone."

The quarries in the neighborhood of Woodstock, Maryland, furnished a granite equal to that of Quincy, and not excelled for beauty of appearance, compactness of structure, and uniformity of color, texture, and composition by any other granite quarries in the United States. There was no objection to this stone except on the score of expense, unless it be considered that in this material the effect of light and shade from projecting surfaces is in a measure lost, while in marble and good tinted freestone every shadow is sharply marked.

The Aquia Creek freestone was not to be trusted, being pervaded by dark specks of the protoxide and peroxide of iron, which, in peroxidating, acquire a yellowish or reddish color, and having occasional clay holes, such as disfigure the Treasury and Patent Office buildings.

The freestone from the upper Potomac, in the vicinity of Seneca Creek, was considered the best and most durable of all the Potomac freestones. The lilac-gray variety found in the Bull Run quarry, 23 miles from Washington, was especially recommended and pronounced to be equal, if not superior, to that supplied for Trinity Church, New York, from the quarries of New Jersey. It has a quality that specially recommends it to builders. When first quarried it is comparatively soft, working freely before the chisel and hammer; but, by exposure, it gradually indurates, and ultimately acquires a toughness and consistency that not only enables it to resist atmospheric vicissitudes, but even the most severe mechanical wear and tear. It can, therefore, be worked at less expense than granite or marble and was the kind selected for the building.

All of the above varieties of stone were subjected to tests for durability under exposure to the weather, etc., by Prof. Charles G. Page. Their cost per cubic foot, delivered in Washington, in accordance with the lowest prices quoted by quarry owners, was as follows:

	Cents.
1. Coarse-grained marble or alum limestone, according to quality	50 to 60
2. Fine-grained marble	70
3. Granite	46
4. Aquia Creek freestone	40
5. Seneca Creek freestone, lilac-gray variety, from Bull Run quarry	20

Bids for the construction of the building were received up to March 15, 1847, and were opened on March 16. Several were found to be proposals for doing only a part or some particular kind of the work, but for the erection of the entire building there were fourteen bids, varying in amount from \$196,000 to \$318,000. James Dixon & Co., of Washington, were the lowest bidders for Seneca freestone laid in rubble masonry, and also for ashlar finish, as follows:

Marble ashlar	\$228,500
Seneca freestone ashlar	205,250

The committee decided that regularly coursed ashlar was best suited to the design and would make a more substantial piece of work than rubble. They also concluded that, with a doubt whether Seneca freestone did not assort even better with the Lombard style of architecture adopted than marble, it was inexpedient to expend \$23,000 additional for the latter. The bid of James Dixon & Co. (consisting of James Dixon, of Washington, and Gilbert Cameron, of New York), at \$205,250, was therefore accepted. Mr. Dixon retired from the firm on June 1, 1847.

The contract was signed on March 19, 1847. It included the most expensive part of the furniture, such as the shelving, cases, desks, drawers, and tables in the laboratory and apparatus room; the book-cases, large tables, and alcove desks in the library; the glass cases in the museum; the seats in the lecture rooms, elevators, toilet rooms, rain-water cisterns; the chairs and tables in the Regents' rooms, flues for heating and lighting, etc., but not the heating and lighting plant nor the drainage.

One condition of the contract was that the work should extend through five years, or to March 19, 1852. It was also stipulated that the building should be erected in such proportions during each year as the committee might direct, but so that the payments to the contractor in each of the first four years of the contract should not exceed \$41,000 annually, and that the wings and connecting ranges should be completed in two years from the date of the contract.

It was subsequently appended to the contract that in case the Regents should thereafter determine to make important alterations in the plan of the building or in the time of its execution, the contractor was to be paid pro rata according to the prices in the contract for work executed, and reasonable damages if the nature of the case should justly demand it.

The architect, James Renwick, jr., who resided in New York and made approximately monthly visits to Washington, was paid at the rate of \$1,800 a year, with traveling expenses amounting to about \$300 more. An assistant architect and superintendent, Mr. Robert Mills, was also employed on the grounds, at \$1,000 a year.

The probable cost of the building had been estimated as follows:

Contract for building.....	\$231,000
Fitting up and furnishing.....	20,000
Warming and lighting.....	5,000
Superintendence (\$3,000 annually).....	15,000
Drainage.....	1,350
Supplying water to building.....	650
Total.....	273,000

Owing, however, to the contract being lower than was expected, and to other facts, the committee judged that the expenditures for the building for the five years would amount to only about \$236,000.

The location of the building was fixed in the middle of the Smithsonian reservation as to north and south, the center of the main structure being upon the axis of Tenth street southwest.

Toward the close of the year 1847, as stated in the committee's report, the contractor was covering in the east connecting range, and hoped still to cover in the east wing before the frost interfered. He had also begun to lay the foundations of the west wing and connecting range, but nothing had yet been done toward the erection of the main building.

The corner stone was laid on May 1, 1847, with imposing Masonic ceremonies, the day being regarded in Washington in the nature of a public holiday. A procession over a mile in length, composed of the various lodges of Free and Accepted Masons of the District of Columbia, with a large delegation of Masons from Baltimore and Philadelphia, the District militia, and three military bands, having formed at the city hall, proceeded to the Executive Mansion, where it was joined by the President, heads of Departments, members of the diplomatic corps, etc., and thence to the Smithsonian grounds. The marshal in chief was Mr. William Beverly Randolph. After prayer by the grand chaplain of the Grand Lodge of Maryland, the ceremony of laying the stone was performed by Grand Marshal Benjamin B. French, assisted by Col. James Page and Mr. Charles Gilman, grand masters of Pennsylvania and Maryland, respectively. An address was then delivered by Hon. George M. Dallas, chancellor of the Board of Regents. A national salute was fired by the Columbia Artillery and one of the bands played a national air. The ceremonies closed with the benediction, pronounced by Rev. Frank S. Evans. The gavel used and the apron worn by the grand marshal were the same that had been used by Washington in conducting the Masonic ceremonies upon the laying of the corner stone of the national Capitol. In a cavity of the stone were deposited, in a leaden box and leaden casket, many articles appropriate to the purpose, and among them an engraved plate, inscribed with the names of the members of the establishment, the officers and Board of Regents of the Institution, the building committee, and the architects. The ceremonies were witnessed by at least 6,000 or 7,000 persons.

1848.

At the close of 1848 the building committee reported that the east wing and adjacent range would probably be ready for occupation early in January. The interior of this part was at that time finished except the shelving of the cases for the apparatus and the furnaces and ventilating apparatus. Battlements, not in the original plan, had been added to the eastern cloister, as the roof seemed too conspicuous.

The west wing and connecting range were completed externally, and the hall of the gallery of art (intended to be used temporarily for the library) was well advanced. Work upon the bookcases was in progress. The foundations of the main part of the building, including the towers, were laid, and the superstructure carried about 5 feet high. The campanile, octagonal towers, and two smaller corner towers of the center building were 30 feet above their foundations.

1849.

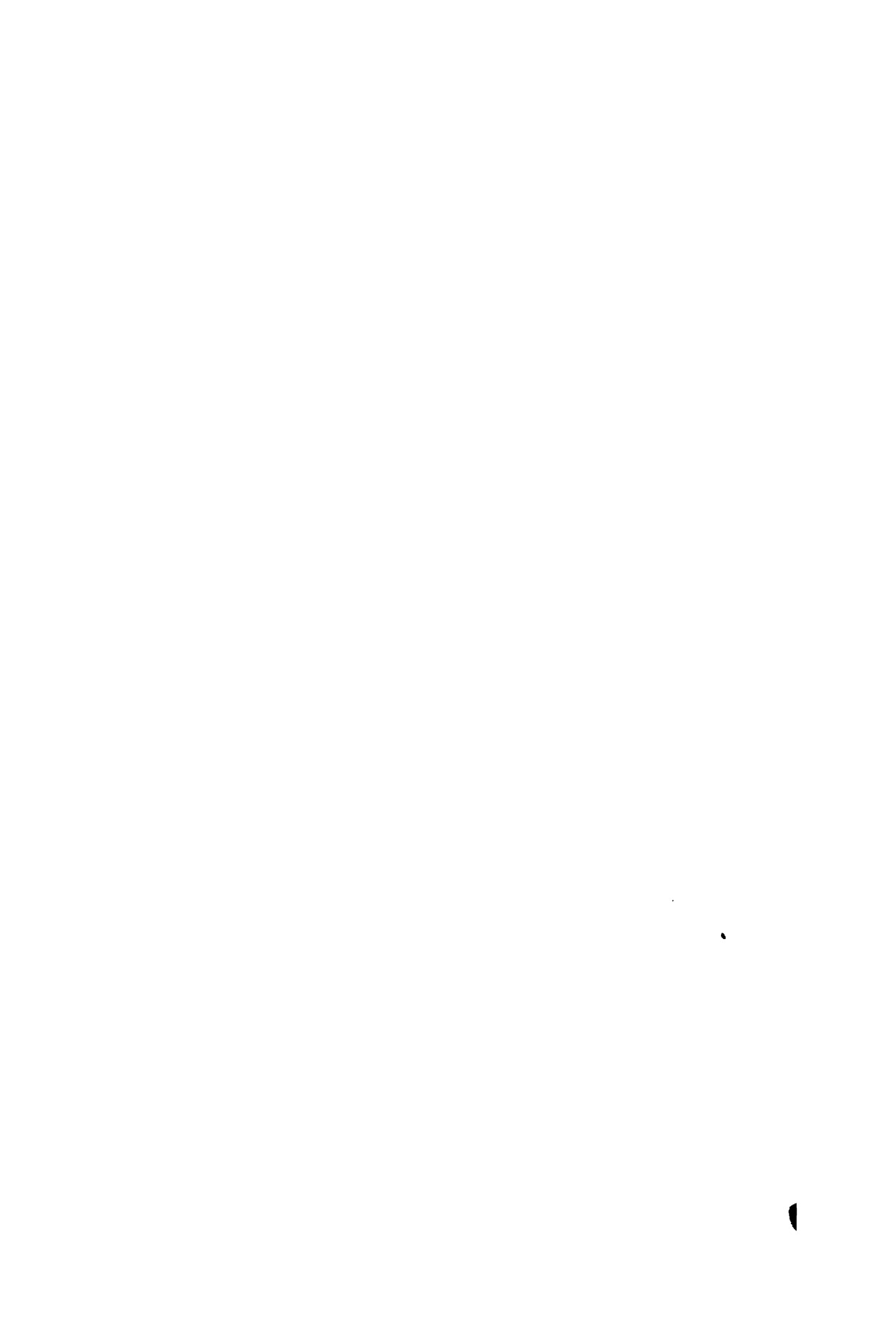
The entire Smithsonian building, according to the annual statement of the building committee for 1849, was under roof before winter, the work having been pushed to protect the large amount of masonry and woodwork. The central front towers and four corner towers of the main building were carried up as high as the walls of that building, and the central rear tower 30 feet high. The work of fitting the west wing and connecting range for temporary library purposes was still in progress. The east wing was taken possession of for the uses of the Institution April 10, 1849.

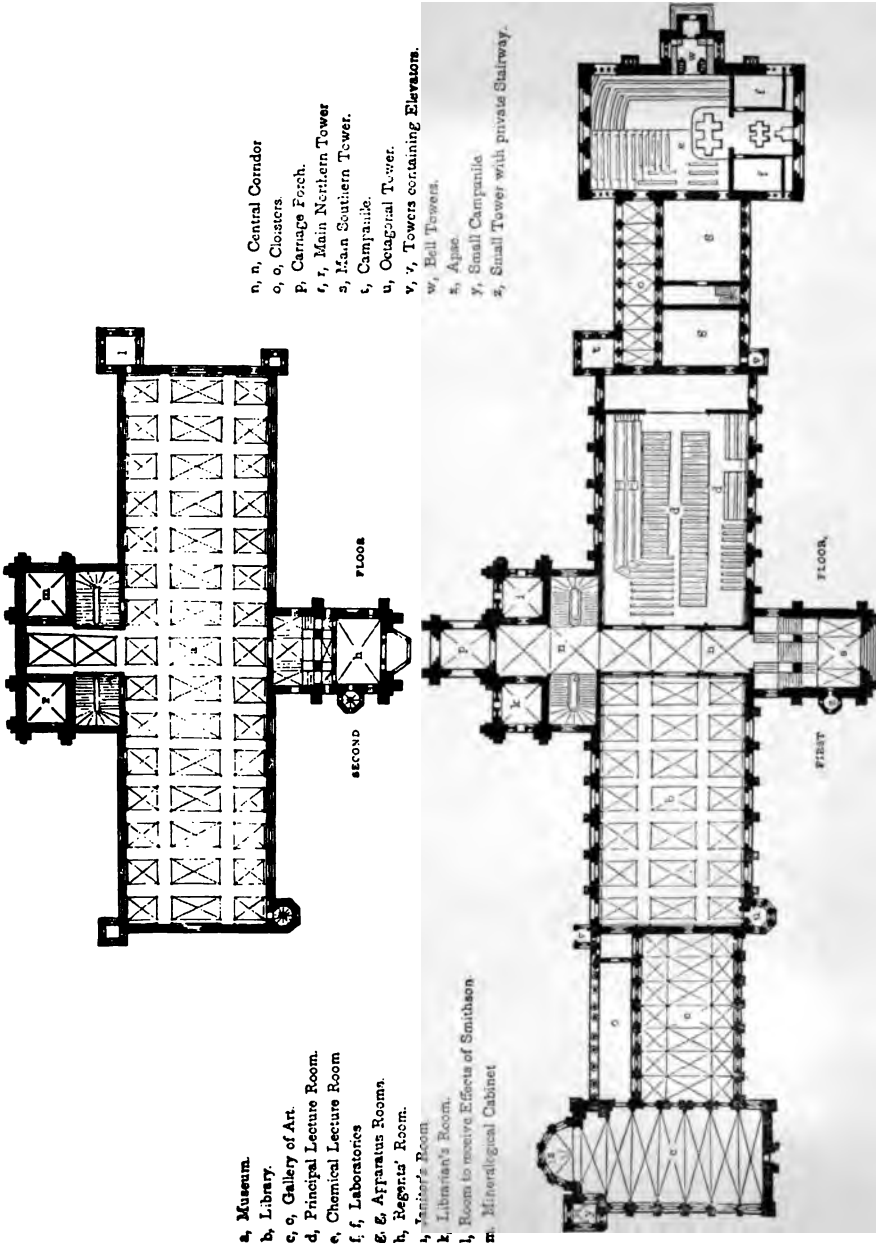
The following changes were made during the year: The lecture hall, as originally constructed, in the east wing, proving entirely too small, the adjoining apparatus and laboratory rooms were removed and the entire wing formed into one large lecture hall provided with seats for 1,000 persons. The proposed lecture room in the lower main hall was given up, and the space thus obtained was divided, a room 65 by 50 feet being assigned as a depository for physical apparatus, the remaining space being allotted to the library. The east range was to be used for the laboratory and working apparatus rooms, connecting on the one side with the lecture hall and on the other with the apparatus museum.

The two stairways, which in the original plan were carried up between the two north front towers and the main building, were dispensed with and the place they occupied added to the library, as was also the central hall, and, as before said, a portion of the proposed lecture hall. The space for the library was thereby nearly doubled in size, and the staircase was to occupy the interior of one of the front towers. A clerestory to the long upper room, or museum, of the main building was adopted by the committee, but was never constructed.

Secretary Henry's part in the above changes is thus referred to in his report for 1849:

The plan of the Smithsonian building was designed by the architect and recommended to the Board by a committee of the Regents before the programme of organization was adopted. It is not strange, therefore, when the building came to be occupied, that changes in the internal arrangement should be deemed advisable, which would better adapt it to the wants of the Institution. Such changes, at my





- a, Museum.
- b, Library.
- c, Gallery of Art.
- d, Principal Lecture Room.
- e, Chemical Lecture Room.
- f, Laboratories.
- g, Apparatus Room.
- h, Registrar's Room.
- i, Master's Room.
- k, Librarian's Room.
- l, Room to receive Effects of Smithsonian.
- m, Mineralogical Cabinet.

- n, Central Corridor.
- o, Cloisters.
- p, Carriage Porch.
- r, Main Northern Tower.
- s, Main Southern Tower.
- t, Campanile.
- u, Octagonal Tower.
- v, v', Towers containing Elevators.
- w, Bell Towers.
- x, Apse.
- y, Small Campanile.
- z, Small Tower with private Stairway.

ORIGINAL GROUND PLANS, SMITHSONIAN INSTITUTION BUILDING.
 Reproduced from Hints on Public Architecture, by Robert Dale Owen, 1849.

suggestion, have been made; and, for the propriety of these I am responsible. They are principally, however, those of simplification, and in themselves add nothing to the cost of the edifice. An increased expense, however, will arise out of the furnishing of new rooms which have been acquired by the alterations.

1850.

The operations during 1850, as shown by the building committee's report, were mainly directed toward the completion of the exterior. The central building was roofed and slated, and inclosed in such manner as to be perfectly protected from the weather. The principal front tower was carried up to a height of 122 feet and covered in temporarily for the winter. The lower central tower was completed. The campanile and northeast corner towers were roofed in. The central south tower was carried to a height of 40 feet, and the southeast and southwest corner towers were built to the height of the cornice of the cell of the main building.

At this time Secretary Henry reported on the general state of the finances as follows:

After all the expenditures which have been made on the building, grounds, publications, researches, purchase of books and apparatus, not only is the original bequest untouched, but there is now on hand upward of \$200,000 of accrued interest. This will be sufficient to finish the exterior of the building, including all the towers, the interior of the wings, ranges, and a part of the interior of the main edifice; which will afford sufficient accommodation for some years to come, and leave \$150,000 to be added to the principal.

On February 26, 1850, a portion of the interior framing and floors of that part of the main building intended to contain the museum of apparatus, fell into the basement, and a meeting of the building committee was immediately called to examine into the conditions. This accident also led to a meeting of the Regents on March 2, at which the following resolution was adopted:

Resolved, That the building committee be requested to take under consideration the reports of the architect, superintendent, and contractor, on the subject of the late accident; that they associate with them Professor Bache, General Totten, the Secretary of the Institution, and some competent and entirely impartial architect or architects; that they make a survey of the whole building, report the manner, faithfulness, and security in which the building contract has hitherto been executed, and upon the plan most proper, in their estimation, to repair the damages and finish that portion of the building in which the accident happened and other unfinished portions thereof.

The committee so designated reported on July 3, 1850, its principal conclusions and recommendations being as follows:

1. That the workmanship of the cut stone of the exterior is good, and the masonry generally, though in some respects not of the best quality, is of a passable character with reference to the terms of the contract.
2. That the interior of the main building is defective in the kind of materials originally adopted, and to a considerable degree in the quality of the materials employed.

These consist principally of wood, and are not of a proper character for a building intended to contain valuable deposits, many of which will be donations to the institution, presented with the implied condition that they are to be properly secured against danger from fire. This mode of construction was probably adopted by the original building committee, in order to lessen the cost of the edifice and to bring it within the sum appropriated by the Board.

3. Although the committee are anxious to save the accrued interest, and to devote it to objects more in accordance with the spirit of the original bequest than the erection of a costly building; yet, they would recommend that the interior work of the center building, as now existing, be removed, and that there be substituted for it a fireproof structure, in accordance with the plan recommended in the reports of Mr. Renwick and of the commission of architects.

4. The completion of the building on this plan, according to the estimate of the commission, requires an additional outlay of about \$44,000. To meet this additional expense, the committee recommend the adoption of the suggestion of their chairman, Colonel Davis, that the exterior of the building and the interior of the towers be completed in accordance with the plan and within the time specified by the contract, and that the remainder of the interior be finished agreeably to the new plan, in the course of a number of years, and in such portions as can be paid for out of the annual interest of the Smithsonian fund, not otherwise appropriated. The object of this part of the proposition is to prevent the derangement of the plan of finance originally proposed by Doctor Bache and adopted by the Board of Regents, viz, of saving out of the accrued and accruing interest, after paying for the building, the sum of \$150,000, to be added to the principal.

5. By the addendum to the contract, the Regents have the power of stopping the building at any stage of its progress on paying the contractor pro rata for the work done, according to the prices specified in the contract, and allowing for reasonable damages if the circumstances require the payment of them. The estimates in this case are to be made by the architect of the institution or other architects selected by the Regents. But with reference to the quality of the work which has been done, it is the opinion of the legal adviser of the committee that the decision of the architect of the building is final, both with regard to the Regents and the contractor.

6. In accordance with the forementioned stipulations of the contract, the committee have requested Mr. Renwick to furnish an estimate pro rata for completing the whole exterior of the building and the interior of the towers, making deductions for materials and workmanship which he would have condemned had the building been completed according to the original plan. The following is the decision of the architect, which has been agreed to by the contractor, with the understanding that nothing is to be paid him on account of profit on work omitted by the proposed change, viz:

For finishing the whole exterior of the building, all the interior rooms of
the towers and of the wings, the sum of..... \$185,154

7. The committee recommend to the Board of Regents that they agree to this proposition, and that a resolution be adopted directing the contractor to proceed with the work in accordance therewith. In recommending this course to the Board, the committee act in conformity with the advice of two of the commission of architects, viz: Mr. E. B. White and Mr. J. R. Niernsee, who undertook the examination in detail of the parts of the building, and gave an estimate as the basis of an equitable settlement.

8. By adopting the above sum of \$185,154 as the amount to be paid to the contractor, Mr. Renwick gives the following estimate of the cost of finishing the building in accordance with the fireproof plan, viz:

Amount of proposed contract.....	\$185,154
Expense of fireproofing the entire center building according to plans and estimates of the architects.....	44,000
Expenses common to both plans:	
Plastering center building.....	\$8,000
Gallery fronts.....	2,000
Staircase of library and Museum.....	425
Furniture of library and Museum.....	4,700
	15,125
Extra cartage	200
Materials now on the ground, but which may not be used.....	1,000
	245,479

9. The original contract, with the addition made to it by direction of the building committee, is.....	209,810
Add the estimate of fireproofing.....	44,000

Thus we have for the cost of the building, according to the estimate of the commission..... 253,810

NOTE.—The foregoing estimates are exclusive of the salaries of the architect and superintendent; also of the cost of the improvement of the grounds and part of the furniture.

This last sum is greater than the preceding by \$8,331. The difference, according to the statement of Mr. Renwick, is due to the various deductions he has made on account of defective materials, imperfect workmanship, and changes in the plan.

In conclusion, the committee are fully of opinion—and in this they are sustained by the commission of architects—that, by adopting the plan of fire-proofing proposed by Mr. Renwick and the proposition of the contractor, the building will be rendered safe and durable at a very reasonable cost, considering the amount of work which has been bestowed upon it.

The committee do not consider it necessary to offer any remarks on the cause of the accident which led to these investigations. If these recommendations be adopted, the whole structure of the interior of the main building in which the accident occurred will be exchanged for one more in accordance with the permanence and utility of the edifice, and in this case they will consider the accident as a fortunate event.

1851.

In view of the report of the special committee following the accident in 1850, the Regents found it necessary to deviate from their original intention, and to order the removal of the woodwork which had been erected in the interior of the main building and direct that its place be supplied by fireproof materials. During 1851 all the exterior of the building, including the towers, was completed. Some minor changes in interior construction, insuring better fireproofing, was also arranged for.

At a meeting of the Regents on February 27, 1851, it was resolved that the executive committee be requested to inquire into the feasibility of providing buildings for the residences of the officers of the

Institution on the Smithsonian grounds or other convenient location, and, if they deem expedient, to report plans and estimates for such buildings to the Board at their next meeting. The reply of the executive committee, made on May 1, 1852, was as follows:

That after due reflection they have come to the conclusion that it would conduce very much to the interests of the Institution if the officers were provided with houses on the Smithsonian grounds, so that they might be present on all occasions and be as much as possible at all times identified with the operations of the Institution; yet at present, while the main edifice is unfinished, they do not consider it advisable to incur the expense of additional buildings, and would therefore recommend that in lieu of the rent of a house \$500 be added to the salaries of Professors Jewett and Baird, to be paid from the beginning of the present year.

1852.

In this year the contract with Gilbert Cameron, including the finishing of the exterior of the entire building and the interior of the wings, connecting ranges, and towers, was declared completed, leaving the whole interior of the main building to be finished. All the woodwork and plastering of the interior of the main building was, by resolution of the Board, to be removed and its place supplied by fireproof materials. Mr. Renwick withdrew his services, as it was not thought best to continue his salary, and Capt. B. S. Alexander, U. S. Corps of Engineers, was employed to prepare detailed drawings and plans for the balance of the work.

Referring to this subject in his report for 1852, Secretary Henry wrote:

From the report of the building committee it appears that the contract for finishing the interior of the wings and ranges and the rooms of the towers has been completed. The whole interior of the main building, comprising a rectangular space of 200 feet long, 50 wide, and about 60 high, remains to be finished with fireproof materials. It is proposed to divide this space into two stories and a basement. These stories will be devoted to the library, the museum, and a large and convenient lecture room.

The business of the Institution would be much facilitated were this part of the building completed. Since Congress has authorized the establishment of a library and museum, it will be well to place all the objects of interest to the public in the main building and make this exclusively the show part of the establishment, devoting the wings and ranges and rooms of the towers to the business operations and other purposes of the Institution. In the present condition of affairs there is no part of the edifice to which the public has not access, and, consequently, business has to be transacted amidst constant interruptions. The loss of time and effective life to which all are exposed who occupy a position of notoriety in the city of Washington is truly lamentable, and where this is enhanced by facility of access to gratify mere curiosity the evil becomes scarcely endurable. Progress in business under such circumstances can only be made by an encroachment on the hours usually allotted to rest, and that, too, at the expense of wasted energies and shortened days.

1853.

Mr. Gilbert Cameron was given the contract for completing the structure in accordance with his previous terms, and the building committee kept constantly in view the idea of rendering the main building entirely fireproof and of constructing it in the most durable and substantial manner. These changes of arrangements delayed work until June 13, 1853, from which time onward it was actively prosecuted. The committee found great difficulty in deciding upon a proper position and plan of a large lecture room, but finally concluded to place it in the second story in the middle of the main building, where the greatest width could be obtained.

1854.

At the close of 1854 the building committee reported that the main or center building was finished, with the exception of a few unimportant additions. Many changes had been required for the better security and adaptation of the building, and they involved an additional expense.

1855.

During this year the entire edifice was completed, and the final report of the architect was approved by the committee. The following account of the interior of the building at this time is taken from Secretary Henry's report for 1855, with some annotations from the report of the building committee:

The building is at length completed, and its several apartments are now in a condition to be applied to the uses of the Institution. As various changes have been made in the original plan, the following brief description may not be inappropriate at this time. It consists of a main edifice, two wings, two connecting ranges, four large projecting towers, and several smaller ones. Its extreme length from east to west is 447 feet, with a breadth varying from 49 feet to 160 feet. The interior of the east wing is separated into two stories, the upper of which is divided into a suite of rooms for the accommodation of the family of the Secretary. The lower story principally comprises a large single room,^a at present appropriated to the storage of publications and the reception and distribution of books connected with the system of exchange. The upper story of the eastern connecting range is divided into a number of small apartments devoted to the operations in natural history, and the lower story is fitted up as a working laboratory.

The interior of the main edifice is 200 feet long by 50 feet wide^b and consists of two stories and a basement. The upper story is divided into a lecture room capable of holding 2,000 persons^c and into two additional rooms, one on either side, each 50

^aSeventy-five feet by 45 feet.

^bAnd 60 feet high from the basement floor to the upper ceiling.

^cThe lecture room, the optical and acoustic properties of which are probably unsurpassed by any apartment intended for the same purpose in the United States, occupies one-half of the upper story of the main building, besides a portion of the front and rear towers. Its precise length is 96 feet and extreme width 62 feet. It will comfortably seat 1,500 persons, and when crowded will contain upward of 2,000.

feet square, one of which is appropriated to a museum of apparatus and the other, at present, to a gallery of art. Both are occasionally used as minor lecture rooms and for the meetings of scientific, educational, or industrial associations.

The lower story of the main building consists of one large hall, to be appropriated to a museum or a library. It is at present unoccupied, but will be brought into use as soon as the means are provided for furnishing it with proper cases for containing the objects to which it may be appropriated.^a

The basement of this portion of the building is used as a lumber room and as a receptacle for fuel.

The west wing is at present occupied as a library, and is sufficiently large to accommodate all the books which will probably be received during the next ten years. The west connecting range is appropriated to a reading room.

The principal towers are divided into stories, and thus furnish a large number of rooms of different sizes, which will all come into use in the varied operations of the Institution. A large room in the main south tower is appropriated to the meetings of the "Establishment" and the Board of Regents; three rooms in one range, in the main front towers, are used as offices; and two rooms below, in the same towers, are occupied by one of the assistants and the janitor; other rooms in the towers are used for drawing, engraving, and workshops. There are in the whole building, of all sizes, 90 different apartments; of these 8 are of a large size, and are intended for public exhibitions.

The delay in finishing the building has not only been attended with advantage in husbanding the funds, but also in allowing a more complete adaptation of the interior to the purposes of the Institution. It is surely better, in the construction of such an edifice, to imitate the example of the mollusk, who, in fashioning his shell, adapts it to the form and dimensions of his body, rather than that of another animal who forces himself into a house intended for a different occupant. The first point to be settled in commencing a building is the uses to which it is to be applied. This, however, could not be definitely ascertained at the beginning of the Institution, and hence the next wisest step to that of not commencing to build immediately was to defer the completion of the structure until the plan of operations and the wants of the establishment were more precisely known.

* * * The whole amount expended on the building, grounds, and objects connected with them is \$318,727.01. This exceeds considerably the original estimate and the limit which was at first adopted by the Regents.

The excess has been principally occasioned by substituting fire-proof materials for the interior of the main building instead of wood and plaster, which were originally intended.

* * * We should not forget that the ordinary expenses of the Institution have constantly increased, and that, while the nominal income has remained the same, the value of money has depreciated; and, consequently, the capability of the original

^aThe ceiling is supported by two rows of columns extending the whole length. At the middle of the space corresponding to the principal entrances are two wing walls, by which, with the addition of screens, the whole space may be divided into two large rooms, with a hall extending across the building between them. This story may be used for a library or a museum, or for both, as the wants of the Institution may require. It is finished in a simple but chaste style and has received general commendation. Indeed, it is, perhaps, in appearance one of the most imposing rooms in this country, apart from adaptation to its purposes. The floor through the middle part is formed of cut stone, that of the other parts is of wood, which, resting on the arches beneath, without space between to contain air, is considered sufficiently fireproof and not subject to dampness from the variation of temperature and humidity of the atmosphere.



MAIN OR NORTH ENTRANCE OF THE SMITHSONIAN INSTITUTION BUILDING.

bequest to produce results has been abridged in a corresponding proportion. Besides, when the building is entirely occupied, the expense of warming, attendance, etc., must necessarily be much increased beyond its present amount. The repairs, on account of the peculiar style of architecture adopted, will ever be a heavy item of expenditure. The several pinnacles, buttresses, and intersecting roofs all afford points of peculiar exposure to the injuries of the weather.

1857.

In 1857 the building committee stated that at its last session Congress had appropriated \$15,000 for cases for the collections belonging to the Government. These were then finished and formed a beautiful addition to the large hall on the first floor, being apparently well adapted to the purpose intended. The west wing, devoted to the library, had been furnished with alcoves and a gallery extending around three sides of the room, an arrangement serving to increase greatly the accommodation and security of the books.

No report was made by the building committee after this year.

1858.

In his report for 1858 Secretary Henry states that—

In order to increase the capacity of the large room appropriated to the collection, the cases have been arranged in two stories, forming a series of alcoves and a gallery on each side. By the adoption of this plan space can be provided for double the number of specimens which were exhibited at the Patent Office.

* * * * *

Comparatively few repairs have been required during the past year on the building, though the changes which have been necessary to accommodate the increasing operations of the Institution have involved considerable expense. The corridors, which were entirely open to the northwest wind, have been inclosed with glazed sashes; a large amount of space has thus been rendered available, and a considerable portion of the interior of the building protected from the inclemency of the weather.

During this year the Government collections at the Patent Office were transferred to the lower main hall of the Smithsonian building, in accordance with the provisions of the act of Congress of August 10, 1846.

FIRE OF 1865, AND RESTORATION OF THE BUILDING.

On January 24, 1865, the building of the Smithsonian Institution was visited by a destructive fire, which burned out the upper story of the main building and the large towers at the north and south entrances. The following account of this disaster is taken from Secretary Henry's report for 1865:

The most important event of 1865 was the destruction of a part of the building and its contents by the fire of January 24. This event must continue to form an epoch in the history of the Institution; and though it can not but be considered a most serious disaster, it may yet lead to changes of importance in the correction of tendencies which might ultimately have absorbed the annual income and neutralized the more liberal policy which has thus far been pursued. In view, therefore, of the character of the event, as well as the continuity of the history, it is deemed expe-

dient, before proceeding with an account of the operations of the year, to repeat briefly the facts connected with the origin and results of the fire.

It may be well, however, for the better information of those not acquainted with the Smithsonian building, to premise in regard to it the following particulars: It consists of a main edifice 200 feet long and 50 wide, with two large wings and two connecting ranges, having in all an extreme length, in an east and west direction, of 450 feet. In front and rear of the middle portion are projections, terminated by high towers, two on the north and one on the south side; moreover, on each corner of the middle building is a smaller tower, and also one on each of the two wings.

The whole of the first story of the main building, in a single room, is devoted to the museum; the upper story, in three apartments, was assigned to the lecture room, the gallery of art, and the cabinet of apparatus. The west wing is entirely appropriated to the library; the east wing to the residence of the Secretary and a storeroom for publications and specimens of natural history. The east connecting range contains the laboratory and office rooms; the west range is an extension of the museum. In the large towers were the Regents' room, the offices of the Secretary, storerooms, and workshop.

Though the original plan was much admired for its architectural effect, it was soon found that, in relation to the means at the disposal of the building committee, it was too expensive to admit in its construction of the exclusive use of fire-proof materials; hence, while the exterior was to be constructed of cut freestone, it was concluded to finish the interior in wood and stucco. Fortunately, this plan, which was carried out in regard to the wings, the connecting ranges, and the towers, was abandoned before the completion of the main building. After the exterior of this, including the roof, had been finished and the framing of the interior was in place, the latter suddenly gave way and was precipitated into the cellar—a mass of broken timber. The attention of the Regents having been called by this accident to the insecurity of the woodwork, they directed that the further progress of the building should be stopped until means could be accumulated for finishing the remainder of the edifice in a more stable manner and with fire-proof materials. In accordance with this direction, after an interval of several years, the construction was recommenced under the direction of Capt. (now Gen.) B. S. Alexander, of the Engineer Corps, and the whole of the main building, except the inside of the towers and the framing of the roof, which had previously been completed, was finished in a substantial manner in iron and brick work. The architect advised the removal of the roof, but as this would have swelled the cost of the building still further beyond the estimate and the means at command, and as the covering was of slate, the framing under it was thought to be in no danger from fire. This, however, was destined to be the part on which the first attack of the element was to be made. Through a mistake in some workmen, the pipe of a stove which had been temporarily used in one of the upper rooms was introduced through the wall into a furring space resembling a flue, but which discharged the heated air from the combustion into the loft immediately under the roof, instead of into the air through the true chimney.^a

^aPrevious to the fire the large room partly occupied by the Stanley collection of Indian portraits had been fitted out with about 200 feet of cases around the walls to receive the ethnological specimens in the possession of the Institution. While engaged in rearranging the pictures above these cases, the workmen, with a view to their own comfort, unfortunately placed the pipe of a stove in a ventilating flue which opened under the roof, and thus caused the conflagration which destroyed the upper part of the main building. Fortunately, none of the ethnological articles had been placed in this room, and consequently these specimens, with those of the museum and of the general collections, have been preserved. (Secretary Henry. Report for 1864, p. 31.)

The rafters were set on fire, and before the burning was discovered the entire wood-work under the covering was in flames. The progress of the fire was so rapid that but few of the contents of the upper rooms could be removed before the roof fell in. The flames soon extended to the large towers, and, as these acted as high chimneys, they greatly increased the intensity of the combustion. The conflagration was only stayed by the incombustible materials of the main building. Had the original plan of constructing the interior of the edifice in wood and plaster been fully carried out, the whole structure would have been destroyed and the valuable library and rich collections of specimens of natural history entirely lost.

The aperture which deceived the workmen was probably made by those who originally plastered the building. It occupied a middle point between two windows, and from its position would naturally lead to the inference that it was designed to conduct the products of combustion directly into the chimney, from which it was only separated by the thickness of a single brick. For what reason it had not been placed in the middle between the two windows is unknown. It is remembered that some ten years previous to the fire this opening was during several weeks used for the insertion of a stove pipe, without suspicion of accident at the time; but in the interval the wood had undergone a process of drying which rendered it more combustible.

Constantly impressed with the fact that the interior of the two wings and the connecting ranges were constructed of combustible material, I have always felt great anxiety on account of the liability to conflagration of these parts of the building. The rest of the edifice, with the exception of the interior of the towers, was supposed to be secure from injury of this nature. A night watch was constantly kept, barrels and buckets filled with water were placed at suitable points, and strict rules were adopted prohibiting the carrying of exposed lights, as well as the practice of smoking, in any part of the edifice. That these precautions were unavailing has been seen, the fire having been communicated at a point where danger was least suspected, and in a manner which rendered its occurrence sooner or later almost inevitable.

The weather at the time was extremely cold, and before the engines could be brought into operation the whole of the roof was in flames. Commencing at the west end of the center building, the flames were driven by the wind, which blew from that direction eastwardly, and, fortunately, away from the library, in the west wing. The destruction of the roof of the main building involved that of the contents of the rooms immediately beneath it and also those of the three principal towers adjacent. In the former were the Indian portrait gallery, the lecture room, and the apparatus room. The first of these contained the large collection of paintings by Mr. Stanley and a series of Indian portraits belonging to the Government. The lecture room was constructed on acoustic and optical principles, and not only answered perfectly the ends for which it was immediately intended, but had served also as a model for lecture rooms in various parts of the country. The apparatus room contained the principal part of the articles presented by the late Dr. Robert Hare, and a large number of instruments of recent construction intended both for illustration and original research.

The losses in the south tower were, first, the contents of the Regents' room, including the personal effects of Smithson; second, those of a large room above it, in which were stored the private library of Reverend Doctor Johns, of Virginia, and the public library of Beaufort, South Carolina, deposited there at the request of Hon. Mr. Stanton, for preservation until the end of the war; and, third, in the attic, a large collection of public documents and complete sets of the Smithsonian Reports, intended for distribution. The effects of Smithson had but little intrinsic value, and were chiefly prized as mementos of the founder of the Institution. They consisted of a number of articles of chemical and physical apparatus, such as were used by him in

his perambulatory excursions, two small cabinets of minute specimens of minerals, a silver-plated dinner service, and a trunk filled with manuscripts. The portrait of Smithson while a student at Oxford, a medallion likeness of him in bronze, his library, consisting of 150 volumes, and a small painting were saved. The manuscripts consisted principally of notes on scraps of paper, intended apparently for alphabetical arrangement in a commonplace book, after the manner of a philosophical dictionary.

The losses in the north towers were the contents of the offices of the Secretary, including the records and copies of the correspondence of the Institution, the woodcuts to illustrate the publications, the steel plates of an expensive memoir, several boxes of stereotype plates, a large number of manuscripts of the Secretary on scientific subjects, four memoirs accepted for publication, about a hundred volumes of valuable books from the library, used for constant and immediate reference; a large number of copies of the Smithsonian Reports and duplicate documents; the contents of the workshop, consisting of a lathe, forge, a full set of tools, and an assortment of hardware and materials for the construction and repair of apparatus; and of the upper room of the highest tower, including the clockwork of an anemometer for recording the direction and force of the wind. Not only was this instrument itself lost, but all the records which had been obtained by the use of it for the last seven years. Fortunately, nearly all the other meteorological records, which were in a lower room, were saved.

The Indian portraits, as far as they were the likenesses of particular individuals, in most cases can never be reproduced, but we are gratified to learn that the extensive collection of Mr. Catlin of a similar character has been purchased in Europe by Mr. Harrison, of Philadelphia, and will be rendered accessible to the student of ethnology. Besides this, there are in existence, particularly in Canada, other portraits sufficient in number and variety fully to illustrate the characteristics of the race. At the same time the loss has fallen very heavily upon Mr. Stanley, the painter and owner of this collection. It was the result of the labor of many years among the Indians; it constituted the pride, as it has been the crowning effort, of his life, and he ardently desired that it might be transmitted to posterity as a monument of his enterprise and industry. The hope is entertained that the Government will see fit to give him an order to paint a picture for the Capitol, in which the principal figures of this collection and the characteristics of the Indian race may be portrayed.

The apparatus presented by Doctor Hare was interesting on account of its association with the history of the advance of science in this country. The collection contained most of the articles invented by the donor, and which are described in the scientific journals of the first half of the present century. Among the chemical implements were those used by that distinguished chemist in procuring for the first time, without the aid of galvanism, calcium, the metallic basis of lime. A number of the articles of apparatus presented by Doctor Hare, though injured by the fire, may be repaired, and I have taken measures for their restoration.

Among the articles of historic interest which were lost is the lens used by Priestley for the evolution of oxygen from the oxide of mercury, and by means of which the first distinct recognition of this elementary substance was effected. It had been presented to the Institution by the nephew of the celebrated philosopher, as was also the apparatus employed by Priestley in his experiments on bodies in condensed atmospheres. The latter was but slightly injured and can readily be repaired. The other articles of apparatus may be replaced at an expense of about \$10,000.

The most irreparable loss was that of the records, consisting of the official, scientific, and miscellaneous correspondence, embracing 35,000 pages of copied letters which had been sent, at least 30,000 of which were the composition of the Secretary, and 50,000 pages of letters received by the Institution; the receipts for publications and specimens; reports on various subjects which have been referred to the Institution; the records of experiments instituted by the Secretary for the Government;

four manuscripts of original investigations which had been adopted by the Institution for publication; a large number of papers and scientific notes of the Secretary; a series of diaries and memorandum and account books. Fortunately, however, a detailed history of the general operations of the Institution is preserved in the printed reports, and a large amount of correspondence connected with natural history and meteorology was saved.

Since the occurrence of the fire all the operations have been carried on in the lower story of the east wing of the building (the upper part still continuing to be the residence of the Secretary) and in the several rooms of the adjoining east range. Connected with an office in the latter, the lower story of the tower attached to the southeast corner of the main building has been converted into a fireproof vault, in which all the valuable papers and records are constantly kept, except for the usually short time they are required for consultation. To insure the wakefulness and fidelity of the watchmen we have introduced the use of an instrument called a "detector," which records the number and the times of his visits to the several parts of the building. For this instrument, which has rendered good service during the past year, we are indebted to the liberality of its inventor, Mr. J. E. Bauerk, of Boston, who, in consideration of the loss which the Institution has sustained by fire, kindly presented it free of charge.

A circumstantial account is given by the building committee of what has been done toward the reconstruction of the edifice. From this it will be seen that the plan adopted contemplates not merely the repair of the damage by the fire, but the restoration of the several parts in fireproof materials, and with such alterations in the division of the interior space as will better adapt it to the uses of the Institution.

The plans have been prepared and the work superintended by Mr. Adolph Cluse, an architect who was warmly recommended by the mayor of Washington as having been successful in designing and erecting the public schoolhouses of the city, as well as a number of churches and other buildings. These plans have been critically examined and, in some cases, modified by the chairman of the building committee, General Delafield, who, by his knowledge and experience in the line of engineering, has rendered the Institution valuable service.

No appropriation has yet been made by Congress to aid in the restoration of the building. Considering, however, the large amount of Government property intrusted to the care of the Institution, it can scarcely be doubted that in a normal condition of the national finances, an appropriation for such purpose would have been readily granted.

In consideration of the extraordinary outlay required for the reconstruction of the building, an effort has been made to reduce as much as possible the miscellaneous expenses, and to engage in no enterprise that is not absolutely necessary to the continuance of the general operations. So many articles, however, of furniture and stores of hardware and stationery were to be replaced that we have not been able to reduce the expenditures to as low a point as we could wish; yet it will be seen that they fall somewhat below those of the preceding year. * * *

The cost of the restoration of the building in fireproof materials without changing the external appearance has, as formerly stated, been far greater than was anticipated. Whether the portion of the work yet to be executed will much exceed in cost that which has already been completed will depend upon the price of materials and of labor. The Institution may in time be able to finish this work without encroaching on its present capital, provided the Secretary of the Treasury shall recognize the inadequacy of the payments of interest which for three years were made in the depreciated currency of the time. If this allowance be not made and no assistance be received from Congress, then, in order to secure the building and its contents from injury by the weather the Institution will be obliged to sacrifice a

portion of its extra fund, and to the extent of this forever diminish its power to "increase and diffuse knowledge among men."

* * * As the public museum of the Institution occupied the portion of the building constructed of fireproof materials, it escaped destruction by the fire, yet the smoke and water to which they were exposed caused some damage to the specimens, and much labor and expense were requisite to restore them to their proper appearance.

The report of Secretary Henry immediately following the fire contains some important statements, which, though made before those above quoted, can better supplement them. They are partly as follows:

Although greatly to be regretted on account of the losses incurred, the accident is not without compensation in considerations of a different nature; thus it has served to call forth the expression of a large amount of kind feeling in regard to the Institution and to direct the attention of Congress to the character and importance of its operations.

* * * Two grave errors were committed in the adoption of the present one [building]; first, the plan was but little adapted to the uses to which the edifice was to be applied; second, the style of architecture required a far greater expenditure than the amount to which the cost of the building was limited. For the purpose of architectural effect the interior was very inconveniently divided. The buttresses, turrets, and towers, while they add very little to the accommodation of the building, greatly increased the cost. To have constructed the building in a substantial and durable manner in strict conformity with the Lombard style of architecture, which was adopted, would have required an expenditure of at least double the amount of the sum appropriated for the purpose. It was therefore necessary, in order that the exterior might be constructed of freestone, that the interior should be finished in wood and stucco, and that thus recourse should be had to the presentation of a falsehood to the eye in the very inauguration of an enterprise for the advancement of truth. The two wings and the two connecting ranges were completed in this manner. The main building, which is 200 feet long and 50 feet wide, embellished with six towers, was also in process of completion, the framing of the interior having been finished, when the underpinning gave way and the whole of the woodwork fell to the ground.

After the occurrence of this accident a commission of architects appointed to examine the building reported that the exterior walls were well built, both in regard to construction and materials, but that the plan of finishing the interior in wood and stucco was improper for an edifice intended to contain valuable articles. It was therefore recommended that fireproof materials should be employed for the portions of the work which remained to be constructed. In conformity with this recommendation the interior of the main building was completed in iron, stone, and brick, with the exception of the roof, which, being covered with slate and not supposed to be exposed to danger from fire, was suffered to remain. It was this change in the mode of constructing a portion of the edifice which, during the late fire, saved the contents of the whole from destruction. It however increased the cost of the building to upward of \$300,000, leaving the remaining parts of the interior of the structure in perishable materials.

* * * Nothing definite can be said at present as to the financial arrangements for the repair of the building. The subject is still before Congress, and although the idea has been confidently entertained that an appropriation would be made for the purpose, yet, from the discussion which took place in the meeting of the joint committee of the two Houses appointed to consider this matter, I do not think a resolution authorizing such an appropriation will be adopted.

The first meeting of the Regents after the fire was held on January 28, 1865, having been called principally in consequence of that event. The Secretary presented a brief account of the fire, and of the steps immediately taken, through the Secretary of War, to place a temporary roof over the main building. This work was done under the Quartermaster's Department of the Army, which furnished the necessary materials and men, the expense being subsequently refunded by the Institution. This roof was adequate to protect the building from storms without interfering with the construction of a permanent covering.

It was announced that the committees on Public Buildings and Grounds of both the Senate and House had already been directed to inquire into the origin of the fire, the approximate loss to the Government and to private persons, the means necessary to preserve the remaining portions, etc. In anticipation of the work of these committees it was thought advisable that a special committee be appointed to report directly to the Board, Mr. R. Wallach, a Regent, and Professor Henry, the Secretary, being designated as such committee, under the following resolution :

That a committee be appointed to inquire into the origin of the fire, to ascertain the extent and character of the loss sustained, and to make suggestions as to what measures should be adopted for the repair and improvement of the building.

The report of this committee, submitted at a Board meeting on February 2, 1865, after reciting the origin of the fire and explaining the losses sustained (amounting, besides the damage to the building, to about \$20,000 for the Institution and \$26,000 for individuals), as well as the parts saved from injury, all of which have been sufficiently described above, made the following suggestions as to what they considered should be done.

There can be no hesitation in adopting the conclusion that steps should be immediately taken not only to repair the injury, but to improve the condition of the building.

1. The main edifice should be provided with a metallic roof.
2. For the wooden conical terminations of the towers should be substituted metallic coverings.
3. All valuable articles belonging to the Institution or deposited in it, including the library, should be placed in the main building, which should be cut off from the wings by iron doors.
4. Provision should be made for a thorough heating of the whole building by steam or hot water.
5. Suggestions should be requested from competent architects and engineers as to work to be done, and those which are adopted should be embodied in working plans and drawings.
6. A building committee of the Board should be appointed to have charge of the work.

No very exact estimate can as yet be made as to the cost of the repairs, etc., for it has not been possible, without erecting a scaffolding, to determine whether it will be

necessary to take down the high northern tower. Colonel Alexander, of the Engineer Corps, however, has informed the committee that he thinks \$100,000 will be required to make the necessary repairs and improvements.

The committee can not conclude without adding that, in their opinion, the occurrence of the fire ought not to be allowed to interfere with the active operations of the Institution, on which essentially depends the reputation it has established throughout the world and its efficiency as an instrument for "the increase and diffusion of knowledge among men." To the support and extension of these operations, therefore, the annual interest from the original fund should, as far as possible, continue as heretofore to be conscientiously applied.

At the same meeting measures were discussed for the repair and improvement of the building, and the opinion was expressed by the Congressional Regents present that an appropriation for the purpose would be made by Congress without opposition, but such relief was not obtained.

The joint committee of the Senate and House of Representatives, above referred to, made its report to Congress on February 21, 1865, after visiting the building, having adopted the report of the Smithsonian committee. At a subsequent meeting of the joint Congressional committee Secretary Henry was requested to describe his connection with the Institution, to give an account of its objects and operations, the origin of the building, and such other facts as might be of public interest. Secretary Henry's statement, together with the report of the committees and of the testimony, were printed conjointly as Senate Report No. 129, Thirty-eighth Congress, second session, February, 1865.

At a meeting held on March 1, 1865, it was resolved by the Regents: "That the whole subject of the repairs and reconstruction of the building * * * be intrusted to the Chancellor, the Secretary, and the executive committee." This committee reported annually during the three years from 1866 to 1868, inclusive, and the following extracts are from that source:

1865. The first step toward the reconstruction of the building was to secure the services of a competent person as architect and engineer to prepare plans and superintend the work. For this purpose Mr. Adolph Cluss, who had designed and directed the building of the principal schoolhouses of the city, was employed.

The next thing to be done was the making of a critical survey to ascertain the actual state of the walls, and to determine what parts it was necessary first to rebuild. This survey forced upon the committee the conviction that the original construction of the building, as a whole, was very defective, and, in many respects, unsuited as a receptacle of records and other valuable articles, the loss of which could never be repaired. The exterior of all the walls consists of a facing of red sandstone, bound to an irregular backing of bluestone of very bad workmanship. In the main building and in the lower portion of the large south tower was inserted a 4-inch brick lining separated by an air space from the main walls. This lining is not bound to the walls, and, therefore, does not add to their strength. It is merely a furring, intended to prevent dampness by the condensation of moisture from the atmosphere. This furring is open at the top, and it was into this that the stovepipe was inserted

which led to the accident by fire. In all the other rooms of the towers the plastering was upon the rough rubble work.

The heavy projecting cornice of the south tower was merely set in place without fastening, and, consequently, could not withstand any disturbing action.

The parts of the building which were not injured by fire, namely, the two wings and connecting ranges, as far as the committee have had the opportunity of examining, are defective in materials and construction. The floors, in some cases, though covered with flagging and filled in with deafening, rest upon beams of pine wood, which is decayed, and in the course of a few years the interior of these parts will require renewal.

It is proper to state that the foregoing remarks on the character of the materials and the construction of the building are not applicable to the work on the main edifice, subsequently executed under the superintendence of Capt. (now General) B. S. Alexander, of the United States Engineers. This work, which principally consisted in the arching of the basement and the main story of the upper building, was executed in fireproof materials and prevented the extension of the fire, and, consequently, the destruction of the entire edifice and all its contents.

From the foregoing account of the original construction of the building, it will not be surprising that the effect of the fire was found to be much more serious than previous to this survey it had been supposed, and that the work to be done could not be confined to the mere repairing of the injury caused by the fire, but would include also the rebuilding of a considerable part of the edifice; and this was particularly the case on account of the decision of the Board that the restoration should be in all parts indestructible by fire.

The heavy projecting cornice of the south tower had fallen down, in part, and the remainder was unfit to receive a new roof.

The high brick columns, extending from the cellar to the eaves of the main building, and supporting the northern wall of the south tower, were so much damaged by the fire as to require to be removed, and consequently, with them the above-mentioned wall itself. The lining of the upper story of the main building was also so much injured that the greater portion of this will require renewal. But the most unstable portion of the building, and that which gave rise to most anxiety, was the principal northern tower. This, which is 140 feet high, starts from a square base, and is gradually transformed into a regular octagon of smaller dimensions. Four sides of this octagon rest upon the sides of the original square, but project into the interior, while its other four sides extend diagonally across the angles of the square, and are supported by rough and imperfect corbel work, consisting of masses of bluestone very seriously affected by the fire. The tower was originally divided into a series of stories by transverse wooden beams and plank floors, which were entirely destroyed. The anxiety in regard to this tower was increased by observing a vertical crack extending a considerable portion of the height of the tower, but whether this had previously been produced by unequal settling, and had merely been increased by the unequal expansion of the exterior and interior walls, due to the fire, or entirely produced by the latter cause, could not be definitely ascertained. As this part of the building imperatively demanded immediate care, the architect was directed to give it his first attention. After a due consideration of its then present condition and its future use as a receptacle of heavy articles, it was considered necessary to erect within it a lining of solid brickwork 9 inches thick, laid in cement, from the bottom to the top, firmly united to the original wall, and serving as the support to iron beams of the brick floor. And, furthermore, it was concluded to fill up in brickwork a number of the high, narrow windows in each story, which would add to the strength of the structure without affecting externally its architectural appearance.

A similar construction was directed in the other principal north tower, and the work in both has been executed in such a manner as to give assurance that these parts of the building will not merely be restored, but will also be rendered more stable than they were before the conflagration. The crack above mentioned has been found, by the undisturbed condition of a thin stratum of plaster placed over it, to have remained the same, and the walls, for several months previous and during the winter, have not undergone any perceptible change.

While the work immediately required for the safety of the front towers was in progress, plans were discussed and prepared for the interior of these as well as for that of the south tower, with a view to their better adaptation to the wants of the establishment.

The original plan of the building included four principal staircases leading to the upper story of the edifice, one on each side of the north entrance, and a similar arrangement on the right and another on the left of the south entrance. As these occupied a large portion of useful space, it was thought best to increase the size of those at the north entrance, dispense with those on the southern, and so arrange the heights of the stories of all the towers as to render them more available for the business operations of the establishment.

The work which has been done on the southern tower consists in the removal of the north wall and a considerable part of the upper portion of the other three walls; the preparation of a part of the freestone, from which to reconstruct the exterior wall; the greater portion of the brickwork of the basement, and the furnishing of the cast-iron columns intended to replace the brick piers which supported the northern wall of this tower. * * *

This temporary roof, covered with felt saturated with tar, has served the purpose intended. It will, however, rapidly deteriorate, and, consequently, the first object of the committee, during the coming season, will be to decide on the character of the roof, and to hasten its completion as rapidly as the work can properly be accomplished.

In the restoration of the building the committee have been governed by the following considerations:

First. To render the work entirely stable, both in regard to material and mode of construction.

Second. To render it thoroughly fireproof.

Third. In view of the great cost at present of material and workmanship, and the condition of the funds of the Institution, at first to do such work as should be necessary to preserve the stability of the several parts of the building, and prevent injury to the property by the weather. * * *

1866. The restoration of the building has been prosecuted during the last year as rapidly as the funds at the disposal of the committee and the character of the work would permit. * * *

The large south tower was so much injured that 30 feet of the upper portion had to be taken down and rebuilt, the cost of which was much enhanced by the necessity of recutting a large amount of new stone for the facing. This tower has been divided into six stories, affording as many large rooms, the lower for an extension of the museum, an upper one for the meetings of the Regents, and the others for storage, etc. The offices for the accommodation of the Secretary and assistants will be in the northern towers and connecting space.

The principal access to the second story of the main building is by two large iron staircases, one on either side of the northern entrance. These have been completed.

All the towers and connections with the main building have been covered with substantial roofs. After much inquiry and personal investigation, it was concluded to adopt the plan for the roof of the main building of wrought-iron framing and slate

covering, the latter secured in place by wire to iron purlines and pointed underneath by a coating of cement.

The inside lining of the walls of the second story of the building, which had been much injured by the fire, has been removed and its place supplied by a new 9-inch brick wall laid in cement, securely tied, and clamped to the outer stonework.

The chairman of the committee has given personal attention to the work in its progress and can state from actual knowledge that the plans, material, and workmanship are of a satisfactory character, alike creditable to the talents and careful supervision of Mr. Cluss, the architect.

1867. It was stated in the report presented to the Board at its last session that it was proposed, during the year 1867, to roof the main building and towers and finish the interior of all the rooms, halls, staircases, and main entrance, leaving the large room of the upper story over the museum unfinished until funds could be provided for the purpose and its future use be determined.

In accordance with this proposition the ironwork of the roof over the museum was erected early in the spring, and covered with slate, fastened to the iron purlins with wire and plastered inside with wall plaster. The iron gutters, as well as the roof, were found perfectly secure from leakage during the hardest summer rains. The severe test of ice and snow during the present winter has shown the necessity for additions in the arrangements for conducting the water from the roof. Plans for this purpose are now under discussion with the architect for persevering in the original plan, or adopting some additional security that the late severe season has indicated to be advisable.

The adaptation of new to old work in restoring the building from the destructive effects of the fire by substituting incombustible materials for wooden partitions, floors, and roofs, has been attended, as was foreseen, with much labor and expense, as well as making additional means indispensable for rendering the roof surfaces, valleys, and gutters water-tight in winter, when covered with snow and occasionally ice, as well as the summer rains. Like the public buildings generally in this city (and we may say elsewhere) where battlements extend above the eaves, with gutters behind them upon the roof, or resting upon the walls, much inconvenience, and at times damage, arises from leaks the result of such a system. It is experienced in the Smithsonian building in consequence of the stone battlements capping all its exterior walls. The present architect's original design, approved by the committee, is set forth in his report of the operations of the year annexed hereto. Neither time nor the funds of the Institution would permit his carrying this part of his plan into operation; and until it is done, together with some additions that the late inclement season has pointed out as advisable and necessary, the building is not secure, nor the property within it, from dampness and moisture.

The introduction of the proposed warming apparatus for all the apartments is the next most essential particular to be undertaken, to be commenced whenever the funds of the Institution will justify.

The security of the several apartments and contents are in a great measure dependent upon such an apparatus as a substitute for the stoves temporarily in use, and for which no permanent smoke flues or other arrangements were provided.

All the rooms in the north tower, forming three suites of three in each, with two rooms on the entrance floor, one for the janitor and the other for a reception room for visitors, have been completed and are now used and occupied as offices for conducting the operations of the Institution. The several apartments in this north tower above these offices have also been completed. The rooms and apartments in the south tower have also been finished and are now occupied. The lower one, or that on the first floor, forms a part of the general museum and is now devoted to the reception of the larger and most weighty articles of ethnology, such as the stone images from Central America and the stone sarcophagus from Syria.

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The apartments on the next story have been fitted up with desks, chairs, and bookcases for the transaction of the business of the museum, and for the packing and distributing the same.

The apartments next above have been fitted up with desks, chairs, and bookcases for the use of the Board of Regents, and those next above with desks, chairs, and bookcases for the use of the Smithsonian Institution, and appropriate to storage at least of the books, specimens, and other objects of the museum.

To increase the accommodation of the original shelves of the upper story, and to provide new means of preservation, the following alterations were made, with the following results:

The cost of the alterations was estimated at \$119,750, and the actual cost was the sum of \$8,887, and the sum of \$8,887 was paid for the preservation of the books.

At the Regent's request, the great hall was fitted up with desks, chairs, and bookcases for the use of the Board of Regents, and the sum of \$8,887 was paid for the preservation of the books.

The alterations were completed in the month of August, 1861, and the sum of \$8,887 was paid for the preservation of the books.

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The apartments on the next story have been fitted up with shelves, bins, and other fixtures for the transaction of the business of the literary and scientific exchanges, packing and distributing the same.

The apartments next above have been finished for the meetings and convenience of the Board of Regents, and those on the three remaining floors have also been finished and appropriated to storage and such other purposes as may become necessary. In this tower are also provided an elevator with convenient mechanical power for removing books, specimens, etc., to and from the basement and four stories above it, etc. * * *

To increase the accommodation two additional floors have been added to the original subdivision of the stories of the north and south towers. To furnish light to the new rooms in the south tower, circular windows have been opened through the walls, without interfering with the original architectural effect of the exterior, thus furnishing sufficient light for the purpose for which these apartments are intended.

The cost of the reconstruction during 1865, 1866, and 1867 amounted to \$119,528.01, all of which was paid from Smithsonian funds, except the sum of \$8,883.69 taken from the Congressional appropriation for the preservation of the Government collections.

At the Regents' meeting of January 27, 1868, it was resolved that the great hall of the second story of the building and such other rooms as are not required for the regular operations of the Institution be devoted to the preservation of the scientific collections. It should be explained in this connection that before this time the library of the Institution had been transferred to the Library of Congress, thus increasing the amount of space available for museum purposes.

A resolution was also adopted at the same meeting that a committee be appointed to report to the Regents at their next meeting what amount of appropriation should be asked of Congress for the care of the Museum and for fitting up the great hall for the safe-keeping and exhibition of specimens. On May 1, 1868, as a result of this action the following memorial was presented to Congress:

To the honorable the Senate and House of Representatives in Congress assembled:

In behalf of the Board of Regents of the Smithsonian Institution, the undersigned beg leave respectfully to submit to your honorable body the following statement, and to solicit such action in regard to it as may be deemed just and proper:

* * * * *

It is true that Congress, at the time the specimens were transferred to the Institution, granted an appropriation of \$4,000 for their care and preservation, that being the equivalent of the estimated cost of the maintenance of these collections in the Patent Office, where they had previously been exhibited. But this sum, from the rise in prices and the expansion of the museum by the specimens obtained from about fifty exploring expeditions ordered by Congress, scarcely more than defrays at the present time one-third of the annual expense. In this estimate no account is taken of the rent of the part of the building devoted to the museum of the Government, which at a moderate estimate would be \$20,000 per annum.

Besides the large expenditure which has already been made on the building, at least \$50,000 more will be required to finish the large hall in the second story, necessary for the full display of the specimens of the Government. But the Regents do not think it judicious further to embarrass the active operations for several years to come by devoting a large part of the income to this object, and have therefore



LOWER MAIN HALL, SMITHSONIAN INSTITUTION BUILDING. EXHIBITION OF BIRDS AND MOLLUSKS.

concluded to allow this room to remain unfinished until other means are provided for completing it.

It is not by its castellated building nor the exhibition of the museum of the Government that the Institution has achieved its present reputation, nor by the collection and display of material objects of any kind that it has vindicated the intelligence and good faith of the Government in the administration of the trust. It is by its explorations, its researches, its publications, its distribution of specimens, and its exchanges, constituting it an active, living organization, that it has rendered itself favorably known in every part of the civilized world, has made contributions to almost every branch of science, and brought more than ever before into intimate and friendly relations the Old and New Worlds.

* * * * *

The Board of Regents are confident that upon a full consideration of the case, your honorable body will grant an adequate support for the collections of the Government, and also an appropriation for finishing the repairs of the building.

* * * * *

In conclusion, your memorialists beg leave to represent on behalf of the Board of Regents that the usual annual appropriation of \$4,000 is wholly inadequate to the cost of preparing, preserving, and exhibiting the specimens, the actual expenditure for that purpose in 1867 having been over \$12,000; and they take the liberty of respectfully urging on your honorable body the expediency of increasing it to \$10,000, and that a further sum of \$25,000 be appropriated at this session of Congress toward the completion of the hall required for the Government collections.

And your memorialists will ever pray, etc.

S. P. CHASE,
Chancellor Smithsonian Institution.
JOSEPH HENRY,
Secretary Smithsonian Institution.

In his report for the same and the succeeding year, Secretary Henry explained that the only exhibition rooms to which the general public had had admission since the fire were the large hall on the first floor of the main building and the adjoining apartment in the south tower. This large hall, containing rich collections in ornithology and ethnology, presented to the eye a succession of large pillars, which obstructed the view of the cases. In fitting up the room of corresponding dimensions in the second story, an opportunity would be afforded of adopting arrangements far better suited for a comprehensive display of the vast number of objects with which in time it would be furnished, as it was intended that the ceiling of this hall should be attached to the long iron girders which span the space from wall to wall, thus obviating the necessity for introducing columns. In addition to the above the west connecting range was provided in 1868 with cases for ethnological specimens and opened to the public in 1869. The west wing was at this time temporarily appropriated to the alcoholic specimens and miscellaneous purposes.

During each of the years 1870 and 1871, Congress appropriated \$10,000 for the fitting up of the large second-story room and other work of reconstruction. Those sums, together with about \$9,000 from

the income of the Smithsonian fund, \$29,000 in all, were expended for that purpose in the latter year.

A readjustment of quarters in the Smithsonian building was announced by Secretary Henry in his report for 1871, as follows:

Arrangements have been made for appropriating the east wing and range to the business which may be considered as belonging exclusively to the essential objects of the Institution, and devoting the main building, west wing, and towers to the Museum. For this purpose the large room on the first floor of the east wing, which was formerly used as a museum laboratory and storeroom, has been fitted up with bins and conveniences for assorting and packing the literary and scientific exchanges to be sent to foreign countries. Preparation has also been made for removing the chemical laboratory from the first floor of the east range to the space immediately below it in the basement, and for applying the whole of the first floor of this part of the building to the business offices of the Secretary and his assistants in the line of what are called the "active operations."

For the special accommodation of the Museum the large room in the west wing, formerly occupied by the library, has been prepared for the reception of cases for mineralogical and geological specimens, while the great hall, 200 feet by 50, in the second story of the main building, has been completed and is now ready to receive the cases for the anthropological and other specimens.

Estimates are now before Congress for fitting up these rooms with cases for the reception and display of the Government collections, and it is hoped that in the next report we shall be able to chronicle the commencement, if not the completion, of the work.

The changes consequent upon the extension of the Museum mentioned made a rearrangement necessary of the greater part of the basement, so as to obtain additional security against fire and greater convenience for the storage of fuel, packing boxes, and specimens. A floor was laid through the basement, and new passages opened, furnishing better access from one extreme of the building to the other. In introducing the fireproof floor into the west wing, advantage was taken of the opportunity to increase the height of the room below it, and to convert it and the adjoining rooms in the west range into laboratories and storerooms for natural history.

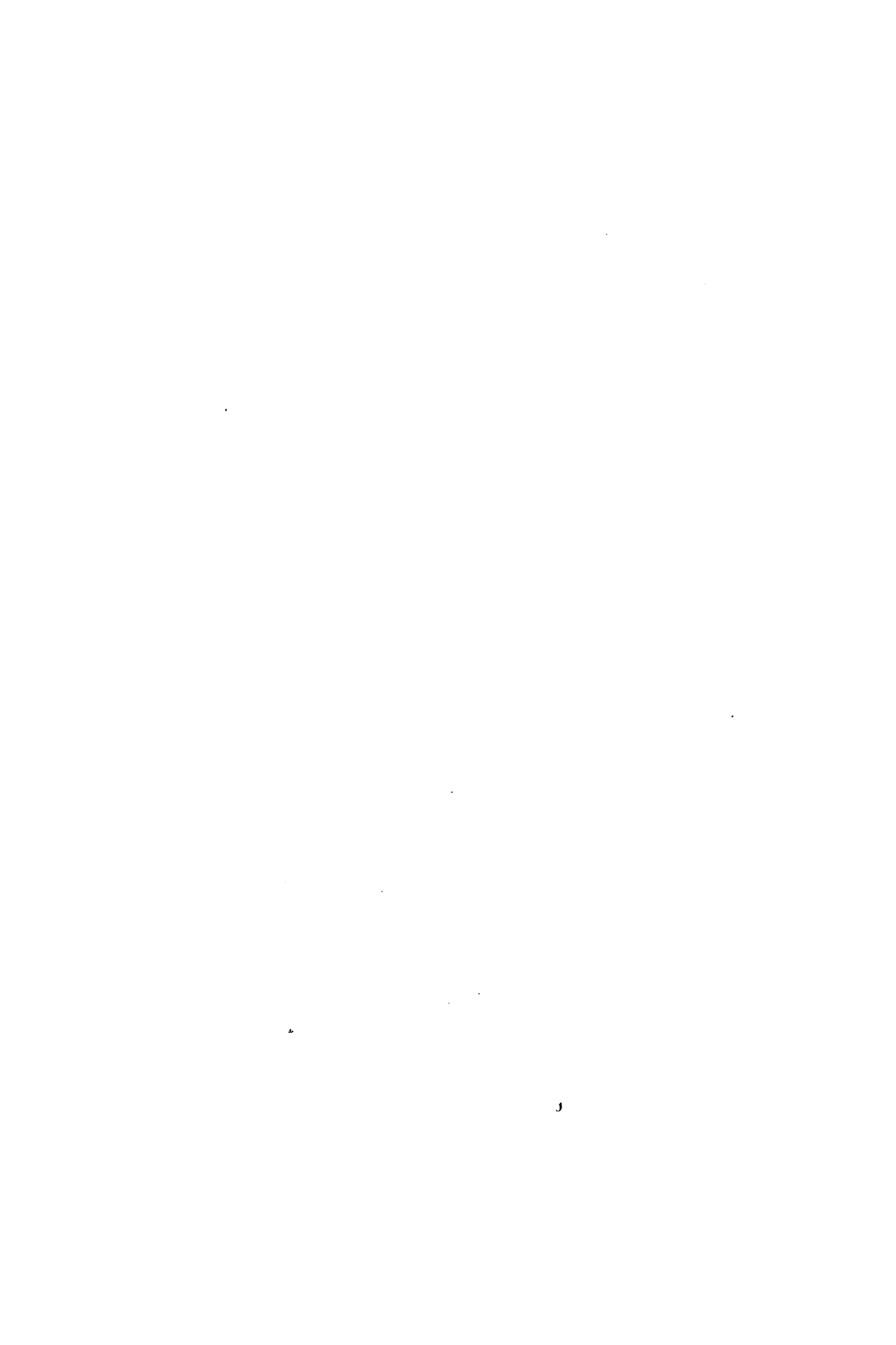
Furthermore, for better security, the fireproofing of the floors of the four towers on the corners of the main building has been commenced. The rooms in the towers furnish studies and dormitories for the investigators in the line of natural history who resort to the Institution, especially during the winter, to enjoy the use of the library and the collections for special researches.

* * * * *

For defraying the expenses of the care and exhibition of the National Museum, Congress has annually, for the last two years, appropriated \$10,000. Although this appropriation was more than double that of previous years, still it fell short of the actual expenditure. The amount of items chargeable to the Museum during the past year, independent of the rent which might have been charged for the rooms occupied, or for repairs of the building, was a little more than \$13,000. Deducting from this sum the \$10,000 appropriated by Congress, there remains \$3,000, which was paid from the income of the Smithsonian fund.

A statement of this deficiency has been presented to Congress, and we trust that the sum of \$15,000 will be appropriated for the same purpose for the ensuing fiscal year.

By the completion of the large room in the second story and the appropriation of the west wing and connecting range to the same purpose, the space allotted to the





GALLERIES IN LOWER MAIN HALL, SMITHSONIAN INSTITUTION BUILDING. USED AS LABORATORIES OF NATURAL HISTORY.

Museum in the Smithsonian building has been increased to about threefold. It is proposed, as was stated in the last report, to devote the room in the west wing to specimens of geology and mineralogy, and the large room in the second story to specimens of archæology and paleontology. As preparatory to the fitting up of these rooms, a series of designs has been prepared at the expense of the Institution by B. Waterhouse Hawkins, the well-known restorer of the ancient animals which illustrate the paleontology of the Sydenham Palace, near London.

ALTERATIONS AND REPAIRS SUBSEQUENT TO 1877.

On December 10, 1877, the President of the United States transmitted to Congress the report of a commission, consisting of Lieut. Col. Thomas L. Casey, U. S. Army, the Supervising Architect of the Treasury, and the Architect of the Capitol, appointed by him on September 27, 1877, to examine the several public buildings in this city and determine the nature and extent of their security against conflagrations and the measures to be taken to guard the buildings and their contents from destruction or damage by fire. This commission recommended in respect to the Smithsonian building that—

All the combustible materials used in the construction of the museum portion of the building should be removed and the parts renewed of fireproof construction, and the openings connecting with other parts of the building should be supplied with fireproof doors.

On the same date the Secretary of the Interior submitted to Congress an estimate "to provide additional security against fire in the Smithsonian building for the Government collections, \$3,000," and on March 27, 1878, Secretary Henry wrote as follows to Senator A. A. Sargent:

I have the honor to inform you that shortly after the fire at the Patent Office the Smithsonian building was visited by the Government committee of inspection and suggestions made by them as to the fireproofing of the portion of the edifice devoted to the collections of the National Museum. These suggestions were at once acted upon, at an expense of \$2,803.29, as per detailed memorandum herewith, and I write to beg that you will kindly consider the propriety of having an item introduced into the deficiency bill whereby the Smithsonian fund may be reimbursed for this outlay.

The action taken was described as follows:

Attention having been specially called to the condition of the public buildings in this city on account of the destruction by fire of part of the Patent Office, it was deemed advisable to give additional security to the valuable collections deposited in the Smithsonian edifice. The main building, which contains the National Museum, is entirely fireproof, but the connecting ranges and the two wings are not so. It was therefore highly desirable that the main building should be entirely isolated from the ranges and wings. For this purpose the large windows facing the wings were bricked up and all the doorways leading from the museum into the ranges either bricked up or fitted with iron instead of wooden doors. The carpenter's and machinist's shops were removed to the main basement and inclosed in brick walls. The storage rooms were made fireproof by replacing wooden partitions and floors by those of brick. In the high central tower brick partitions have been constructed on the stairways, to prevent the passage of fire from one story to another.

Secretary Baird also refers to this subject as follows in his report for 1880:

The Smithsonian building was one of those carefully examined by the commission, and it was recommended that iron doors should be placed in the passageways between certain rooms. An appropriation of \$3,000 was subsequently ^a made by Congress for this purpose; and a contract for its execution was accordingly entered into with Mr. George L. Damon, of Boston. After considerable delay in the performance of this contract, the doors were delivered and put in place by Mr. Damon, to the entire satisfaction of the executive committee. This arrangement has greatly promoted the safety of the building and its contents from the risk of the spreading of any fires which might accidentally occur within its walls. A few additional changes are still desirable to give still further security to the public property placed in the charge of the Institution.

In his report for 1879 Secretary Baird writes that during the year other alterations had been made in order to increase the efficiency of the building and reduce the expense of superintendence and maintenance. The document room had been enlarged and refitted. The eastern wing, formerly used by Secretary Henry as a residence, had been converted into a series of offices. Eleven large fireproof doors had been placed in the building to isolate the different wings and floors. The laboratory had been rearranged and many other improvements made, and it was believed that the building was then in a condition of thorough efficiency and adaptation to its scientific purposes.

In each succeeding report mention is made of necessary repairs and alterations of greater or less extent, at the cost of the Smithsonian fund, but the annual expenditure for these purposes was generally small. Secretary Baird reported in 1881 that—

At no distant time some expensive work of renovation will be required upon the ceiling of the great hall in the second story of the main building, as in some places the plaster appears in danger of falling off and injuring the cases and specimens on exhibition below.

In 1882 somewhat extensive changes were made at the west end of the building. The basement under the west wing, which had previously been occupied indiscriminately for the preservation and elaboration of the collection of birds and fishes, was subdivided, and each subject confined strictly to its own section.

The western corridor was also at this time fitted up as an exhibition hall for fishes.

At the meeting of the Board of Regents held January 18, 1882, Secretary Baird called attention to the combustible and insecure condition of the eastern portion of the Smithsonian building, and presented plans, prepared at his request by the architects, Messrs. Cluss & Schulze, which, without materially changing the architecture of the building, would provide largely increased accommodations for

^aSundry civil act for 1880.

offices and workrooms, the storage of publications, the exchange system, etc.

The Board unanimously adopted a resolution, instructing the Secretary and executive committee to present the subject to Congress and request an appropriation for the purpose. The Secretary, in accordance with this instruction, sent the following letter on the 13th of March to the Speaker of the House of Representatives:

HON. J. W. KEIFER,

Speaker of the House of Representatives.

SIR: By instruction of the Board of Regents of the Smithsonian Institution, I have the honor to transmit to Congress the following resolution, adopted at the last meeting of the Board, January 18, 1882, and, in doing so, beg that it be referred to the appropriate committee of the House of Representatives and receive that attention which the urgency of the case requires:

Resolved, That the Secretary and executive committee present a memorial to Congress showing the importance and necessity of rendering the east wing of the Smithsonian building fireproof, requesting an appropriation therefor, and, if the means are furnished, to proceed with the work."

It will be remembered that in January, 1865, a fire occurred in the Smithsonian building, which destroyed a large portion of the main edifice, with its adjacent towers, and a very large amount of valuable public and private property.

The main building was restored with fireproof materials, but the east wing, composed entirely of wood and plaster, and which had escaped injury, remains in its previous dangerous condition. Originally a lecture room, it was fitted up many years ago with apartments for the residence of the late Secretary and his family. This application of the wing, however, was discontinued after Professor Henry's death; but the rooms thus set apart are entirely unsuited to the operations of the establishment, and, while in every way objectionable, the timbers have decayed and no arrangements are provided for proper lighting, heating, and ventilation.

The main building and western extension are occupied by the collections of the Government; the east wing embraces the offices of the Secretary, chief clerk, corresponding clerk, and registrar, and also accommodations for the extensive operations of the department of international exchanges, the benefits of which accrue not only principally to the Library of Congress, but to all the public libraries and scientific societies throughout the United States. The rooms are filled with the archives, files of correspondence, original scientific manuscripts, vouchers, the stock of Government and Smithsonian publications for distribution at home and abroad, etc., and their destruction by fire, to which they are constantly exposed, would be greatly detrimental to the interests of the Government and the general public.

In addition to this, an extensive fire in the east wing would endanger and possibly destroy the main portion of the Smithsonian building, the upper and lower halls of which contain rare specimens belonging to the Government, and most of which could not be replaced.

Congress has recognized the importance and propriety of gradually reconstructing the interior of the Smithsonian building, in fireproof materials, by making appropriations for the purpose at various times between 1870 and 1875; and the last Congress, in 1879, appropriated \$3,000 "for providing additional security against fire in the Smithsonian building."

It is now proposed to remodel the interior of the east wing, so that without disturbing its present architectural style, the internal capacity will be doubled by a new arrangement of floors, partitions, and roofs, and all the rooms be adapted to the effi-

cient prosecution of the work of the Institution and the various interests intrusted to its management by Congress.

Inclosed I beg to send a copy of the report of the board of fire inspectors (appointed by the District Commissioners) upon the condition of the Smithsonian building. I have the honor to ask, in the name and on behalf of the Board of Regents that the following appropriation be made at the present session of Congress, viz, "For continuing and completing the fireproofing of the Smithsonian Institution, \$50,000."

I am, very respectfully, your obedient servant,

SPENCER F. BAIRD, *Secretary.*

[Extract.]

WASHINGTON, D. C., *March 13, 1882.*

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

GENTLEMEN: The commission to inspect buildings in the District beg leave to submit herewith report No. 5.

By invitation of Professor Baird, the east wing and connecting corridor to the main building of the Smithsonian Institution was visited and inspected. In this portion of the building are all the records and valuable documents belonging to the Institution. The interior is entirely of wood and illy arranged, making it especially unsafe and liable to accident from fire, thus endangering the entire building. As a matter of safety, this wing and corridor should be completely cleared out and rebuilt of fire-proof material and furnished with improved modes of communication and egress.

Official extract furnished Prof. S. F. Baird.

WILLIAM TINDALL,

Secretary Commissioners District of Columbia.

The above memorial received favorable consideration by the Forty-seventh Congress, resulting in the passage of the following item in the sundry civil act for 1884:

For completing the reconstruction, in a fireproof manner, of the interior of the eastern portion of the Smithsonian Institution, \$50,000. (Stat. XXII, 628.)

The preparation of plans, the details of construction, etc., were placed in charge of Messrs. Cluss & Schulze, architects. Proposals were asked and the bids opened on April 26, 1883. The removal of the contents of the east wing and corridor was soon effected, the offices of clerks and others were transferred to the large adjacent exhibition hall, and accommodations for storage were provided by the erection of a temporary shed on the south side of the Smithsonian building.

In 1883 Secretary Baird reported that

The appropriation was found sufficient to secure the fireproofing of the building, but a number of other desirable objects remain to be secured, such as a heating apparatus, a passenger elevator, a freight lift; the introduction of speaking tubes, electric bells, telephones, a concrete floor in the basement, an underground communication between the Smithsonian and the new Museum buildings, etc., for which an additional appropriation of \$15,000 has been asked.

Two subsequent appropriations were granted by Congress with reference to these changes, as follows:

For finishing, heating, gas fitting, plumbing, and completely furnishing the eastern portion of the Smithsonian Institution, and for finishing the fourth and fifth stories, including liabilities already incurred, \$15,000. (Sundry civil act for 1885.)



WEST RANGE, SMITHSONIAN INSTITUTION BUILDING. EXHIBITION OF INSECTS.

For finishing and completing the furnishing of the eastern portion of the Smithsonian Institution building, \$5,600. (Sundry civil act for 1886.)

In his report for 1884 Secretary Baird announced the expenditure of the appropriation of \$15,000 in fitting up the two upper stories of the building, which had been necessarily left unfinished for lack of funds. This included the introduction of iron furring and iron lathing for the ceilings immediately under the roof, and the fitting up of many of the rooms for their special requirements. The rooms in the reconstructed portion were then all occupied for the general purposes of the Institution, notably the departments of administration, of international and miscellaneous exchanges, of the reference library, of transportation, and of publication, the chemical laboratory, etc.

In transferring the offices back to the east end considerable changes were made in the lower hall of the main building, including the removal of all exhibition cases in the galleries, which have since been used exclusively for laboratory and storage purposes by several departments of zoology. Telephones, speaking tubes, an accurate time service, and other minor conveniences were also introduced at the eastern end.

The report of the Secretary for 1885 notes the completion of the alterations in the east wing and corridor in a thoroughly fireproof manner, with twice the original number of available office rooms, and with every facility for doing the work mentioned in the best possible manner. It also calls attention to the unsightly and dilapidated condition of the remainder of the building, used by the Museum, which will soon require extensive repairs.

In accordance with estimates submitted, the sundry civil act for 1888 provided "for urgent and necessary repairs to central and western portions of the Smithsonian Institution building, \$15,000." In a letter to the chairman of the House Committee on Appropriations, dated December 11, 1886, and in his annual report for 1887, Secretary Baird explained the reasons for the proposed changes, stating that the floors, ceilings, and roof of the west corridor were the same as in the original construction and not fireproof, being in fact very combustible. Nearly all of the large alcoholic collections of the National Museum and the Fish Commission were in or adjacent to this part of the building, so that should a fire break out it would result not only in serious damage to the building, but also in the entire destruction of extensive and valuable portions of the national collections. He also called attention to the fact that, though the Smithsonian building was constructed at the expense of the Smithsonian fund, it had since 1858 been almost wholly given over to the purposes of the National Museum.

The fireproofing was intrusted to Messrs. Cluss & Schulze, architects, from whose report the following account of the work is taken.

The reconstruction extended over the curtain between the main building and the west wing, a building of 60 feet in length and 54 feet in width, with an adjoining turret containing stairs. It contains a basement where alcoholic specimens are kept.

The main story is mostly occupied by an exhibition hall, extending up into the roof, with a clerestory. Along the north front was originally an open cloister, which had been for many years temporarily fitted up by framework for offices.

Permanent provision was made for these purposes, and a mezzanine story formed by the insertion of a fireproof upper floor.

Besides the old, rotten, combustible floors and roofs, a complicated system of decorative hollow columns and vaults, framed of wooden scantlings, boards, and lathed plastering, had to be carefully removed, so as not to injure the outside walls, consisting of a thin cut-stone facing, backed by ordinary rubblework.

In the reconstruction the Romanesque general character of the building was preserved with the greatest simplicity compatible with the surroundings, and also made a necessity by the limited appropriation in conjunction with the increased cost of decorations in the fireproof materials.

The fact that the west wing and the central part of the Smithsonian building had never been made entirely fireproof was communicated to the Regents by Secretary Langley in his report for 1888, in which attention was also called to the proximity of much inflammable material. He likewise explained that for certain reasons the fireproofing of the west wing was the more urgent. References to this subject were again made in the Secretary's reports for 1889 and 1890, and the importance was urged of gaining additional light in the center of the main building by the construction of a skylight in the roof and a well-hole through the second floor.

As these parts of the building were used for the National Museum, an appropriation for the proposed changes was asked of Congress, beginning in May, 1888, Senator Morrill, a Regent of the Institution, pressing the matter with his customary energy. The first bills, relating mainly to the west wing, were passed by the Senate twice during the Fiftieth Congress (ending March 4, 1889), but failed of action in the House.

The question was again brought up in the Fifty-first Congress (1889-1891), originating in the Senate, and was discussed in several forms. The most comprehensive measure and the one carrying the largest appropriation was Senate bill No. 2033, reported on January 27, 1890, by Senator Morrill. Its wording was as follows:

That, for the purpose of fireproofing the roof of the main hall, and that of the so-called chapel in the west wing of the Smithsonian building, and to put in a skylight and a wellhole to admit light into the central portion of the lower hall of said building, and also to replace some woodwork of the towers, and other repairs, said work to be done under the direction of the Architect of the Capitol with the approval of the Regents of the Smithsonian Institution, the sum of \$45,000 shall be, and

hereby is, appropriated out of any moneys in the Treasury not otherwise appropriated.

On March 6, 1890, Secretary Langley addressed a letter to the chairman of the House Committee on Public Buildings and Grounds, on the subject of the above bill, in which he says that the \$45,000 is asked to complete the fireproofing and repair of a part of the building which for a long period has been almost entirely given over to Government purposes rent free. Following are quotations from the same letter:

The portions of the building which are not fireproof are—

The roof of the so-called "chapel" in the west wing, which contains collections whose mere money value is estimated at over \$250,000, but whose value to science is inestimable. This is also the only portion of the building which is suitable to devote to donations of art objects, which may be expected when the Government provides a safe depository for them.

The ceiling and part of the roof of the main exhibition hall, now occupied by probably the most extensive and valuable archæological collection in the United States, is of combustible material and in urgent need of repairs, the ceiling threatening to fall, in part, and crush the cases and their valuable contents and possibly endanger the safety of visitors and employees. Both roofs are leaking, and these changes involve the replastering and repainting of the walls.

The floor of the main hall, 200 by 50 feet, is worn out and needs renewal, and all this implies special temporary provision for the collection.

The lower hall is now very dark, and in replacing the roof and ceiling of the upper story it is desirable that a large skylight and wellhole be inserted, which would greatly add to the comfort of visitors by increasing the light and providing better ventilation.

The rooms occupied by the Bureau of International Exchanges are in less need of repair, but some portion of the amount asked is intended to be devoted to the extreme east wing, occupied by these offices.

In addition to what has been mentioned, there are wooden floors and other wood-work in the towers which are a source of danger, and it is to be observed that, owing to the crowded condition of the Museum, it has been necessary to erect a paint shop filled with combustible material immediately against the south wall of the building and close to the roof, whose dangerous condition has just been described. The present state of things is one of continual menace.

The bill as finally enacted into law, as an item in the sundry civil act for 1891, was as follows:

For fireproofing the so-called chapel of the west wing of the Smithsonian building, and for repairing the roof of the main building and the ceiling and plastering of the main hall of the building, \$25,000, said work to be done under the supervision of the Architect of the Capitol, with the approval of the Regents of the Smithsonian Institution, and no portion of the appropriation to be used for skylights in the roof nor for wellhole in the floor of the main building, \$25,000. (Stat. XXVI, 383.)

In his report for 1891 Secretary Langley announces gratifying progress in the changes and repairs up to June 30, 1891, consisting in the entire replacement of the roof of the west wing with a substantial construction of iron and slate and the repairing of the roof and of

the ceiling and plastering of the upper hall of the main building. By the close of the fiscal year 1892 this work was practically completed, though with the expenditure of only a part of the appropriation, and in his report for that year Secretary Langley states:

I would especially urge that the balance of this appropriation, unexpended by reason of a limiting clause introduced in the act, on account of which the money is not available for certain repairs originally contemplated, should be now made available by Congress for increasing the storage room in the east wing of the building, and at the same time that certain rooms be fitted for the special needs of the Government Exchange Bureau, now occupying rooms in the main building urgently needed for other purposes.

This request was granted by Congress in the sundry civil act for 1894, as follows:

For completing the repairs upon the Smithsonian building, and for such other work as is needed to protect the building from further deterioration and to place it in proper sanitary condition, any unexpended balance remaining to the credit of the appropriation for fireproofing, etc., shall be available for the purposes above stated; this work to be done under the direction of the Architect of the Capitol and in accordance with the approval of the Secretary of the Smithsonian Institution. (Stat. XXVII, 582.)

The use made of the unexpended balance above referred to is thus described in the report of the Secretary for 1893:

A restrictive clause contained in the appropriation of August 30, 1890, for repairs to the Smithsonian building was removed by a clause in the sundry civil act for the year ending June 30, 1894, so that a portion of the amount unexpended became available for making necessary repairs to the roof of the eastern wing and improving the sanitary condition of the building, as well as for increasing the space available for storing documents and handling the Government exchanges. The plumbing in the eastern part of the building has been thoroughly overhauled and a suite of dark and damp rooms in the basement, on the south side, has been transformed into well-lighted and comfortable offices, thus freeing several rooms upon the first floor, needed for other purposes, and making it possible to handle more expeditiously the great number of books passing through the exchange office, though even with these new rooms additional storeroom for the Government exchanges will be called for at no distant day.

Other small changes at the east end of the building, made mainly at the expense of the Smithsonian fund, are described as follows in the reports for 1894 and 1895:

The narrow windows and the small diamond panes of glass admit so little light that in winter days some of the rooms where clerical work is carried on need to be artificially lighted, and in all cases the occupants lose the advantage of what ought to be abundant light, considering their open surroundings in the middle of a park. I think it well to state that while I should have made many more changes in the interest of the comfort and health of the clerical occupants of the building if I had had the means to do so, I have never felt at liberty to alter the external appearance of the building when alteration could possibly be avoided, and I have therefore never authorized the enlargement of any of the apertures in the stone work or made any changes of this kind which could be understood as modifying the structural features (except in improving the sanitary conditions of the basement), and when any change





WEST HALL, SMITHSONIAN INSTITUTION BUILDING. EXHIBITION OF MARINE INVERTEBRATES.

is mentioned here it will always be understood that it is essentially the work of the carpenter in providing for larger inside frames and larger lights in the sashes and in like alterations.

Thus, in the east wing of the building, in the fourth story, a room for containing the archives of the Institution has been provided, which is well lighted by one of the few large windows the building possesses and which has been fitted for more convenient reference to the records of the Institution. The second floor has been made brighter by repainting and by some additional floor lights in the third floor, and the windows in the room especially set apart for the safe-keeping of the engravings and books of art belonging to the Institution have been thus enlarged, while some of the rooms on the second floor have been improved by slight alterations in the window frames. On the first floor additional quarters were provided for the library in the rooms which were vacated by the transfer of the exchange department to the lower floor.

In continuing much-needed improvements in the east wing of the Smithsonian building, especially with a view to better light and ventilation, the lighting of the rooms on the first floor occupied by the library has been greatly improved by enlarging the window frames and replacing the small diamond panes by single sheets of glass. Similar changes have been made in the Secretary's office, on the second floor, as well as in some of the rooms on the third and fourth floors. Several rooms on the fourth floor, heretofore of no use except for storage, have been made habitable and have proved useful for various needed purposes.

The sanitary condition of the building has been improved by the removal of certain objectionable features and by the installation of a comprehensive system of ventilation by which pure air at an equable temperature is assured in most of the office rooms. Work upon this was well advanced at the close of the year.

Another great improvement added during the year is the introduction of electric lights in all the offices of the east wing, the electric power being supplied by a special plant, which, with the ventilating apparatus, has been placed in the basement of the south tower, where considerable changes were made for their accommodation.

Since the above dates the only alterations which need be mentioned in this connection have been the replacement of the wooden floor in the lower main exhibition hall with a terrazzo pavement, the fitting up of the children's room on the main floor of the south tower, the improvement of the conditions on all the other floors of the same tower, and the construction of a tunnel between the Smithsonian and Museum buildings, which, while intended primarily for the heating pipes, electric wires, etc., has been made sufficiently large to serve as a general passageway.

On the other hand, it is to be noted, with regret, that the upper main exhibition hall, devoted to prehistoric archæology, had to be closed in 1902 because of the loosening and fall of plaster over a large part of the ceiling and walls. The room was at once recognized to be unsafe for the admission of the public, and its appearance was extremely unsightly. Provisional repairs, to the extent possible from the regular appropriation, have recently been completed, and the hall will soon again be made serviceable, but a considerable expenditure would be required to place it in thoroughly good condition.

SMITHSONIAN BUILDING.

DESCRIPTION.

Exterior.—The building erected for the Smithsonian Institution, in accordance with the design prepared by Mr. James Renwick, jr., architect, of New York City, is in the later Norman or, as it may with more strict propriety be called, the Lombard style, as it prevailed in Germany, Normandy, and southern Europe in the last half of the twelfth century; the latest variety of the rounded style, as it is found immediately anterior to the merging of that manner in the early Gothic. In the general design and most of the details the architect adhered to the period to which this style is referable. The general feeling, however, which permeates the design, especially in the upper towers, is that of a somewhat later era, when all lingering reminiscences of the post and lintel manner had been discarded and the ruling principles of arch architecture were recognized and carried out. The semicircular arch stilted is employed throughout in doors, windows, and other openings. The windows are without elaborately traceried heads. The buttresses are not a prominent feature and have no surmounting pinnacles. The weather moldings consist of corbel courses, with bold projection. The towers are of various shapes and sizes. The main entrance on the north, sheltered by a carriage porch, is between two towers of unequal height.

In his description of the plan in *Hints on Public Architecture*, Doctor Owen states:

I am not acquainted with any actual example yet remaining from what has been variously called the Lombard, the Norman, the Romanesque, and the Byzantine school, with which the Smithsonian building will not favorably compare. In so far as the architect has permitted himself to innovate upon ancient precedents from the style in which he designed, he has done so, in my judgment, with discretion and advantage. * * * I esteem myself fortunate in being able in this book to refer to an actual example, at our seat of government, the architect of which seems to me to have struck into the right road, to have made a step in advance, and to have given us in his design not a little of what may be fitting and appropriate in any manner (should the genius of our country hereafter work such out) that shall deserve to be named as a national style of architecture for America.

The design as originally carried out consisted of a main central building, two stories high, and of two lateral wings of a single story, connected with the main building by intervening ranges, each of the latter having a cloister, with open stone screen, on the north front. The only important changes since made have been the reconstruction of the east wing and range, which are now four and three stories high, respectively, the closing in with stone of the western cloister so as to adapt it to laboratory purposes, and the completion of the fireproofing of the building.

The extreme length of the building from east to west is 447 feet. The main structure is 205 feet long by 57 feet wide and 58 feet high to the top of its corbel course, though, including the main north and south towers and the carriage porch, it attains at the center an extreme width of 160 feet. The east wing is 82 by 52 feet, the west wing, including its projecting apse, 84 by 40 feet and 38 feet high, while each of the connecting ranges is 60 by 49 feet.

The main building has in the center of its north front two towers, of which the higher reaches an elevation of 145 feet. In the middle of the south front is a single massive tower 37 feet square, including buttresses, and 91 feet high. At its northeast corner stands a double campanile, 17 feet square and 117 feet high to the top of its finial, at its southwest corner is an octagonal tower finished with open work above, and at its southeast and northwest corners are two smaller towers. There is also a small tower at the northwest corner of the west wing.

The location of the building is the center of the original Smithsonian reservation, or the southern and higher part of the so-called Smithsonian Park, about 20 feet above the average level of Pennsylvania avenue. The material of which the building is constructed is a fine grade of freestone, of the lilac-gray variety, obtained from quarries in the new red sandstone near the mouth of Seneca Creek, a tributary of the Potomac River, about 23 miles above Washington. The faces of the building are finished in ashlar, laid in courses from 10 to 15 inches high.

At the present time it would not be considered appropriate to design a building of this character for museum purposes, because, while most of the exhibition halls are more or less adapted to their requirements, there is too much waste space, too many dark places, wholly inadequate accommodations for storage, and few rooms suitable for laboratories, the latter also being mainly inconvenient of access. The windows were glazed in the beginning with small square pieces of glass, set diamond shape in wooden frames, quite in keeping with the style of architecture, though admitting less light than larger panes. This manner of glazing has been retained, except at the eastern end, where, at the time of reconstruction, single lights were mainly substituted.

The building was originally constructed in what seemed to be a thoroughly substantial manner, but these qualities were mainly confined to the outer walls and the floors. Subsequent reconstructions have greatly tended to increase its stability, and the building throughout is now practically fireproof. This has resulted from the introduction of fireproof construction and of iron doors, by means of which any part of the building can readily be cut off from the remainder.

The foundations are very substantial and the walls of the building very thick, as would be necessary in a structure of this kind. The roofs, except on the connecting ranges, are slated.

Interior.—As first planned, the Museum was to occupy only the large upper main hall in the Smithsonian building, the room now and for many years past used for the exhibition collections of prehistoric archaeology. The corresponding hall on the main floor was to be divided equally between the library and a large lecture room, while the west hall and connecting range were specially constructed for the gallery of art. The east hall and range, one story in height, contained the smaller lecture room, laboratories, and rooms for apparatus.

During the progress of the work of building and fitting up, however, all of these proposed arrangements were changed, either permanently or temporarily, the assignments of space at the time of the fire of 1865 having been as follows: The east wing was separated into two stories, the upper of which was divided into a suite of rooms for the accommodation of the Secretary and his family. The lower story consisted principally of a single large room, appropriated to the storage of publications and their reception and distribution in connection with the system of exchanges. The upper story of the eastern connecting range contained a number of small apartments devoted to the operations in natural history, and the lower story was fitted up as a working laboratory.

The upper story of the main building was divided into a lecture room, capable of holding 2,000 persons, and two additional rooms, at the ends, 50 feet square, one of which contained a museum of apparatus and the other a gallery of art. Both were occasionally used as minor lecture rooms and for the meetings of scientific, educational, and industrial associations. In 1868, after the rebuilding made necessary by the fire, this entire story was assigned to the Museum by a resolution of the Board of Regents. The lower story of the main building, consisting of one large hall, was unoccupied at first, but as the means for furnishing were provided it was utilized for the exhibition of natural history and other collections, the specimens from the Patent Office having been mainly transferred to these quarters in 1858.

The west wing was occupied by the library until its transfer to the Library of Congress in 1866, while the west range was used as a reading room. The tower rooms were utilized for various purposes, one large room in the south tower being assigned to the meetings of the Establishment and the Board of Regents, and three rooms in the north tower to the offices of the Secretary.

Since the fire of 1865 there have been even greater changes, as detailed in the foregoing historical account. By 1871 the administrative offices had become practically segregated in the east wing and range, commonly designated together as the "east end," which was

transformed into the so-called children's room, with a mosaic floor, the walls painted in several tints of green, and the ceiling covered with an arbor and vine. Low, light-colored cases, almost wholly of glass, contain a series of specimens, mostly animal, chosen to excite the wonder of children, besides which there are several paintings upon the walls and two aquaria with living fishes.

Adjoining the main hall on the west is the west range (60 by 37 feet), one story high, but surmounted by a clerestory. The side roofs are supported by two rows of columns, similar to those in the main hall but not so heavy, being 6 feet apart and about 8 feet 2 inches from the side walls. The windows are confined to the south wall. Upright cases form alcoves along the sides of the room, while flat-topped table cases occupy the central aisle. This range has recently been given over to the exhibition of insects. It previously contained the fishes and was originally connected with the library as a reading room.

The western hall follows and has for a number of years been devoted to the display of marine invertebrates exclusive of the mollusks, with extensive provisions for the storage of specimens. It has the appearance of a chapel, by which name it is often designated. It is relatively very high, with an arched ceiling and skylight, and terminates at the northern end in an apse. Its dimensions, not including the apse, are: Length, about 66 feet; width, 35 feet; greatest height, 37 feet 8 inches. There are windows well up on the south and west sides and lower ones in the apse, but none on the east. High up on the south wall is a handsome rose window. This room, together with the adjoining range, was planned to contain the gallery of art, but from the time of its completion until 1866 it was occupied by the library. Now upright cases of black walnut occupy the wall space on all sides, except in the apse, which contains a synoptical collection displayed in small cases. The body of the hall has three rows of flat-topped and high, square cases, on unit bases fitted with storage drawers. The small adjoining tower is also used for the storage of marine invertebrates.

The old cloister to the north of the west range, originally open at the front, was inclosed with wood at an early date; but when this part of the building was fireproofed, the woodwork was replaced with stone. The room thus gained is divided into two well-lighted apartments, used as laboratories for fishes and marine invertebrates.

The second floor, as designated on the plans, contains the galleries of the main lower hall already described. At the head of the first flight of stairs from the main entrance are three small rooms used as natural-history studies, and at a corresponding height in the south tower is a room fitted up by the Smithsonian Institution for its collection of apparatus. There is also a low second-story room over the western cloister, used for the storage of fishes.



MAIN UPPER HALL, SMITHSONIAN INSTITUTION BUILDING. EXHIBITION OF PREHISTORIC ARCHEOLOGY.

Properly speaking, the third floor, so named on the plans, is, for the main part of the building, only the second floor. It consists of a single large room of the same size as the lower main hall, being thus about 200 feet long by 50 feet wide and 29 feet 3 inches high. Formerly it contained the picture gallery, a lecture hall, and a museum of apparatus, but soon after the restoration succeeding the fire of 1865 it was turned over to the department of prehistoric archæology, which has occupied it ever since. It is one of the finest halls in the possession of the Museum, but for a long time it has been in bad condition, owing chiefly to the loosening and fall of plaster. The extensive repairs made necessary on this account have, however, recently been finished. As the ceiling is supported from the roof, the hall contains no pillars, and there are no galleries, so that the space is entirely clear; and while the windows bear the same relations to the central space as in the lower hall, the light is more freely distributed. The cases are of several old patterns, not permitting of a satisfactory installation, especially considering the height of the room, which, with proper treatment, could be made exceedingly effective. In the north tower on this level are three small rooms used as the laboratories for prehistoric archæology, and in the south tower is the Regents' room.

The floor of the north towers and intervening space next above the archæological workrooms comprises a suite of three similar rooms, occupied as laboratories for conchology. Three succeeding floors in the same towers, containing six rooms in all, are utilized as storerooms for mollusks and other marine invertebrates. Above these in the taller tower are still six stories, but their high position renders them practically unserviceable. The three floors which succeed the Regents' room in the south tower are all used for the storage of publications.

While the basement is of good height, only the eastern part is in proper condition, the central and western parts requiring to be thoroughly renovated, including the building of broad areas along the exterior to assist in the lighting and ventilation. The heating plant is near the center of the basement, but now serves only in a supplementary capacity. In the north tower are the toilet rooms. To the eastward from there the basement is mainly used by the Smithsonian Institution and the International Exchange Service; to the westward all the available space is given over to Museum storage. There are seven small rooms and one large room, one of the former being used for supplies, while all the remainder are overfilled with specimens in the several groups of birds, fishes, mollusks, and marine invertebrates. With the exception of the birds, the specimens are mainly alcoholic. These collections are very large and of great value, but they require at least twice the present amount of space for their safe arrangement, and the darkness and dampness of the rooms unfit them for purposes of study.

NATURAL-HISTORY WORKSHOP.

In order to provide more extensive and more suitable quarters for the preparators and photographer of the Museum, with immediate reference to preparations for the Philadelphia Centennial Exhibition, a small two-story brick building was constructed in 1875 on the Mall, a short distance west of the southwestern corner of the Smithsonian building. It consists of a main structure, about 30 by 27½ feet, and of two wings, each about 28 by 17 feet, on the east and west sides. The latter have been used as a stable and a carriage house and were somewhat enlarged in 1901 and 1902 at the expense of the Smithsonian fund, their present dimensions being those given above. The original Congressional appropriation for this building amounted to \$3,000, but, proving inadequate and in order to hasten its completion, the Institution advanced an additional sum of \$3,927.84, which was refunded by Congress in 1877.

The upper part of the main building was fitted up as a photographic laboratory, the remainder of the main building, with its basement and the rooms over the carriage house, being assigned to the work of taxidermy, preparation of skeletons, modeling, the painting of models, etc. In the course of a few years the accommodations which it furnished were greatly outgrown, and certain divisions of the work were transferred elsewhere. At the present time only the upper story is occupied for any of these purposes, and principally by the bird taxidermists. In 1881 the department of photography was removed to the Museum building, and the old rooms were allotted to the use of the photographers of the U. S. Geological Survey and the Bureau of American Ethnology, who remained there until 1884.

ARMORY BUILDING.

This building, assigned in 1877 to the purposes of the National Museum and now occupied as the headquarters of the U. S. Fish Commission, is located at the southern end of that part of the Mall lying between Sixth and Seventh streets. It was erected under an appropriation of \$30,000, granted in the civil and diplomatic act for 1856, for the use of the local volunteers and militia and as a place of deposit for the military trophies of the Revolutionary and other wars, and for newly invented and model arms for the military service. It is a rectangular brick structure, with many large windows, measuring about 102 feet long, 58 feet wide, and 46 feet high to the gable. It has four stories, including an attic, which afford a combined floor space of over 20,000 square feet. The building remained dedicated to its original uses until after the close of the civil war, when, the militia of the District not being organized, it was left unoccupied.

The use of this building was granted to the Smithsonian Institution, *in order* to provide for the temporary storage of the large collections

which were expected to be received from the Centennial Exhibition at Philadelphia, by the following provision in the sundry civil act for 1877:

For repairing and fitting-up the so-called Armory building, on the Mall between Sixth and Seventh streets, and to enable the Smithsonian Institution to store therein and to take care of specimens of the extensive series of the ores of the precious metals, marbles, building stones, coals, and numerous objects of natural history now on exhibition in Philadelphia, including other objects of practical and economical value presented by various foreign governments to the National Museum, \$4,500: *Provided*, That the said sum shall be expended under the direction of the Secretary of the Smithsonian Institution.

The collections, when brought to Washington from Philadelphia and stored in this building in their original packing cases, together with other collections from national surveys, filled it completely from the ground floor to the attic. The sundry civil act for 1878 provided for the completion of the interior arrangements and for maintenance in the following terms:

For fitting up the Armory building for storage of articles belonging to the United States, including those transferred from the international exhibition and expense of watching the same, \$2,500.

For 1879 and 1880, the same sum was granted "for expense of watching and storage of articles," etc. An identical amount was appropriated for 1881, in which year the National Museum building was completed, and the following clause added: "and for transfer to the new National Museum."

Some of these collections, with others from the Geological Survey and the Bureau of Ethnology, and several workshops were retained, however, at the Armory building for a number of years longer, when certain quarters, including the main floor, were appropriated to the use of the U. S. Fish Commission, of which the Commissioner, Spencer F. Baird, was also keeper of the Museum. The following was the wording of the act for 1882:

For expense of watching, care, and storage of duplicate Government collections and of property of the United States Fish Commission, \$2,500.

The text of the sundry civil items for 1883, 1884, and 1885, was identical, except for the insertion of the word "ground" in two instances and its omission in the others, and was as follows:

For care of the Armory building (and grounds) and expense of watching, preservation, and storage of the duplicate collections of the Government and of the property of the United States Fish Commission contained therein, including salaries or compensation of all necessary employees, \$2,500.

In the corresponding bill for 1886, "the property of the National Museum" was substituted for "the duplicate collections of the Government."

During the succeeding three years no appropriations were made

directly for the Armory building. It became more extensively used by the Fish Commission, the Museum retaining only a few workshops and some storage quarters on the third floor. The expenses of maintenance and repair were paid by the Commission. In 1888 the newly appointed Fish Commissioner requested that the entire building be turned over to the Fish Commission for office and hatchery purposes. Opposition arising, however, the matter was settled for the time by the following item in the sundry civil act for 1889:

That the building known as the Armory building, Washington, D. C., shall be occupied as at present, jointly by the United States Commission of Fish and Fisheries and the National Museum.

The act for 1890, however, which is as follows, extended the privileges of the Fish Commission:

Fish Commission: For altering and fitting up the interior of the Armory building, on the Mall, city of Washington, now occupied as a hatching station, for the accommodation of the offices of the United States Fish Commission, and for general repairs to said building, including the heating apparatus, and for repairing and extending the outbuildings, \$7,000, or so much thereof as may be necessary, the same to be immediately available and to be expended under the direction of the Architect of the Capitol; and for the purpose above named the Secretary of the Smithsonian Institution is hereby required to move from the second and third stories of this building all properties, except such as are connected with the workshops hereinafter named, under his control; and the workshops now in the second story of said building shall be transferred to and provided for in the third story thereof. And the Architect of the Capitol is hereby directed to examine and make report to Congress at its next regular session as to the practicability and cost of constructing a basement story under the National Museum building.

In his report upon the National Museum for 1890, Doctor Goode states that--

In the Armory building there are at the present time several hundreds of boxes containing valuable material which has never been unpacked, since there is no space available for the display of the specimens. Many of the boxes contain collections which were brought to the Museum through the medium of special acts of Congress.

Realizing, however, the inconvenience to the Fish Commission of retaining these undesirable features in the midst of the office quarters then in course of construction, a compromise was effected whereby the balance of the material in storage was transferred to a large adjacent shed erected by the Commission and the workshops to a location near the Museum. Some parts of these sheds are still used for the same purpose.

THE MUSEUM BUILDING.

HISTORICAL ACCOUNT.

At the beginning of 1877 the Board of Regents made its first request to Congress for means to erect a museum building supplemental to the Smithsonian building, which for over twenty years had housed the



NORTH FRONT, NATIONAL MUSEUM BUILDING.

collections of the Government in conformity with the act establishing the Institution. By this time all of the available space in the Smithsonian building was overcrowded with specimens, and the need of additional, spacious quarters had suddenly arisen, mainly through the acquisition of exceedingly large collections of great value, donated to the United States by foreign governments and other exhibitors at the Philadelphia Centennial Exhibition of 1876. At their meeting of January 24, 1877, the question was under discussion by the Regents, when, on motion of Doctor Parker, the following preamble and resolution were adopted, and the Secretary was instructed to transmit them to Congress:

Whereas Congress, in the organization of the Smithsonian Institution, directed that it should make provision on a liberal scale for a museum to contain all the objects of natural history and of curious and foreign research, then belonging to or hereafter to belong to the United States Government; and

Whereas, in accordance with this direction, the Institution has developed and for many years principally supported this National Museum, the collection being the property of the Government, while the building was erected for their accommodation, at a cost of \$500,000, out of the income of the Smithsonian fund; and

Whereas, on account of the appropriations of Congress for a national exhibit at the Centennial, and the liberal donations which have been made by several States of the Union, by individuals, and especially by foreign governments, the National Museum has suddenly increased to fourfold its previous dimensions and far beyond the capacity of the Smithsonian building to contain it: Therefore,

Resolved, That Congress be respectfully requested to provide accommodations for these additional collections by the erection of a suitable building in connection with the present Smithsonian edifice.

This resolution was presented to the Senate on January 26, 1877, and to the House of Representatives on February 2 of the same year, being referred in the former body to the Committee on Public Buildings and Grounds and in the latter to the Committee on Appropriations.

Under date of February 5, 1877, the Regents also transmitted to Congress a memorial on the same subject, which, besides defining the legal objects of the Museum of the Smithsonian Institution and the origin and extent of its collections, contained the following paragraphs, equally pertinent to the needs for added space:

By an act bearing date July 31, 1876, additional duties were laid upon the Smithsonian Institution as custodian, and \$4,500 were appropriated "for repairing and fitting up the so-called Armory building, on the Mall between Sixth and Seventh streets, and to enable the Smithsonian Institution to store therein and to take care of specimens of the extensive series of the ores of the precious metals, marbles, building stones, coals, and numerous objects of natural history now on exhibition in Philadelphia, including other objects of practical and economical value presented by various foreign governments to the National Museum.

As a fruit of this act of the General Government, the Smithsonian Institution finds itself the custodian of enormous collections that had been displayed at the Centennial Exposition and on the closing of that exhibition had been presented to the United States. These donations are made by individuals among our own citizens,

by foreign exhibitors, and by several of the States of the Union, and there is scarcely a power in the civilized world in any region of the globe which has not taken part in these contributions, and some of them with the largest generosity. Men of science, most competent to pass judgment, pronounce them to be of immense value and are of opinion that, including the gifts from States of the Union and the exhibits of the United States, they could not have been brought together by purchase for less than a million of dollars.

* * * * *

Their adequate exhibition requires an additional building which shall afford at least four times the space furnished by the present edifice of the Institution.

The Government of the United States is now in possession of the materials of a museum exhibiting the natural products of our own country, associated with those of foreign nations, which would rival in magnitude, value, and interest the most celebrated museums of the Old World.

The immediate practical question is, Shall these precious materials be for the most part packed away in boxes, liable to injury and decay, or shall they be exhibited?

It was the act of Congress which ordered the acceptance in trust of these noble gifts to the United States. The receiving of them implies that they will be taken care of in a manner corresponding to the just expectations of those who gave them; and one of the prevailing motives of the donors was that the productions of their several lands might continue to be exhibited. The intrinsic value of the donations is, moreover, enhanced by the circumstances under which they were made. They came to us in the one hundredth year of our life as a nation, in token of the desire of the governments of the world to manifest their interest in our destiny. This consideration becomes the more pleasing when we bring to mind that these gifts have been received not exclusively from the great nations of Europe from which we are sprung, or from the empire and republics on our own continent beyond the line, but that they come to us from the oldest abode of civilization on the Nile, from the time-honored empires and kingdoms of the remotest eastern Asia, and from the principal states which are rising into intellectual and industrial and political greatness in the farthest isles and continent; from states which are younger than ourselves and bring their contributions as a congratulatory offering to their elder brother.

We have deemed it our duty to lay these facts and reflections before both Houses of Congress and to represent to them that if they, in their wisdom, think that the unequalled accumulation of natural specimens and works interesting to science, the evidence of the good will to us that exists among men, should be placed where it can be seen and studied by the people of our own land and by travelers from abroad, it will be necessary to make an appropriation for the immediate erection of a spacious building. Careful inquiries have been instituted to ascertain the smallest sum which would be adequate to that purpose, and the plan of a convenient structure has been made by General Meigs, the Quartermaster-General, U. S. Army. We beg leave further to represent that to accomplish the purpose there would be need of an appropriation of \$250,000. This amount is required not as a first installment, to be followed by others, but as sufficient entirely to complete the edifice.

Should this appropriation be made at an early day, the building could be ready for the reception of articles before the next session of Congress.

This memorial was referred in both Houses to the Committees on Public Buildings and Grounds and met with general favor. A bill meeting the requirements was passed by the Senate on February 22, 1877, but a corresponding bill offered in the House on March 2 was defeated by objection, possibly because of the lateness of the session, less than two days remaining before the close of Congress. The debates were brief but interesting.



NORTH FRONT, NATIONAL MUSEUM BUILDING.

Senator Morrill, on February 6, 1877, remarked:

As I have stated in years past, it has seemed to be a necessity that we should provide for a national museum. It has been the opinion of the Committee on Public Buildings and Grounds on the part of the Senate, I believe unanimously, for some years that we ought to take all of the squares next east of the public grounds, throughout the length and breadth of the north and south range of one square, taking one square in depth and the whole length, for the purpose of a national museum and Congressional Library, and evidently this matter should be provided for at once. * * * There are, as I am informed, at least fifty carloads of articles that have been given to us by foreign governments. Thirty-two or thirty-three out of the forty nationalities abroad have given us their entire exhibits at the Centennial Exhibition. Their money value is scarcely computable, but if it were to be computed it exceeds our own, as large as our exhibits were there and as creditable to the country. Our own, I believe, in money value, have been computed at \$400,000. These foreign exhibits are computed, at least in money value, at the sum of \$600,000, but in historical and scientific interest they perhaps surpass anything that has been assembled in any national museum on the globe.

Senator J. W. Stevenson, on the same day, made the following statement:

It is known to the Senate that the Smithsonian Institution was represented at the late Centennial Exhibition at Philadelphia. At the close of that exposition a number of the foreign powers there represented and who contributed to that grand display, at its close generously donated to the Smithsonian Institution most of their articles and products there exhibited. * * * The motive which prompted these donations to the Smithsonian Institution was unquestionably one of amity and respect entertained by the foreign powers donating them for the Government of the United States. But unquestionably these donors expected that this Government would, through the agency of the Smithsonian Institution, keep these articles thus donated on public exhibition, and in this way the respective products of each country would become known to the people of our entire country.

The articles donated are valuable, rare, varied, and occupy much space. * * * The Smithsonian Institution has no building in which they can be either exhibited or safely preserved. They must remain, therefore, in boxes, subject to injury and to decay, unless Congress shall take some immediate action toward the erection of a building in all respects suitable for their exhibition and preservation. The capacity of such a building is estimated by competent architects to be four times as large as the Smithsonian building. A plan of such a structure has been already drawn by General Meigs. * * *

Professor Henry assures me that with the erection of the contemplated building on the plan of General Meigs, with the articles now on exhibition in the Smithsonian Institution with those just donated, we shall have the nucleus of a national museum which, in a few years, will equal any in the world.

In presenting the memorial to the House on February 7, 1877, Representative Hiester Clymer said, among other things:

It may not be disputed that the acceptance of them [the collections from Philadelphia] by the Government imposes an obligation that they shall be preserved and exhibited for the gratification and instruction of the people. Their preservation and exhibition must be confided to the National Museum, of which, by law, the Regents of the Smithsonian have the custody. They have presented for our consideration the necessity for erecting a suitable building for the purposes I have indicated, giving an estimate of its probable cost.

The bill which passed the Senate as an item in the sundry civil bill, but failed of action in the House, in this the second session of the Forty-fourth Congress was as follows:

For a fireproof building for the use of the National Museum, 300 feet square, to be erected under the direction and supervision of the Regents of the Smithsonian Institution, in accordance with the plan of Maj. Gen. M. C. Meigs, now on file with the Joint Committee of Public Buildings and Grounds, on the southwest corner of the grounds of the Smithsonian Institution, the sum of \$250,000 is hereby appropriated out of any money in the Treasury not otherwise appropriated; said building to be placed west of the Smithsonian Institution, leaving a roadway between it and the latter of not less than 30 feet, with its north front on a line parallel with the north face of the buildings of the Agricultural Department and of the Smithsonian Institution; and all expenditures for the purposes herein mentioned, not including anything for architectural plans, shall be audited by the proper officers of the Treasury Department.

The necessity for a new Museum building was brought to the attention of the President of the United States through the following communication, dated October 8, 1877:

Sir: I have the honor, in behalf of the Board of Regents of the Smithsonian Institution, to invite your attention to the propriety of recommending to Congress the memorial of the Board of Regents (a copy of which is herewith inclosed), asking that an appropriation be made for a building to accommodate the valuable collections presented to the United States through this Institution at the late international exhibition in Philadelphia.

As explanatory of this request it may be proper to state that the Smithsonian Institution was authorized by Congress to receive and take charge of these collections, and that they were presented with the expectation on the part of the donors that suitable provision would be made for their display at the seat of government. They consist of full series of articles illustrative of the economic products, the natural history, and in many cases the manners, customs, and arts of the foreign countries represented at the Centennial Exhibition, and are of great importance to the advancement of science, education, and manufacture. Besides these are the objects collected by the Smithsonian Institution and U. S. Fish Commission of the animal, mineral, and fishery resources of the United States, also of public interest.

These articles now constitute, by law, a part of the National Museum, which has been placed by Congress in charge of the Smithsonian Institution. This Museum has hitherto been accommodated in the building erected for the purpose at the expense of the Smithson fund, in accordance with the direction of Congress. This edifice, however, is filled to overflowing, while there are elsewhere, in storage, from the donations previously mentioned, collections of greater magnitude than those in the Smithsonian building.

It is evident that an appropriation for an additional building can not justly be taken from the Smithson fund, and therefore the Board of Regents have made the application mentioned in their memorial. This memorial was presented to Congress at its last session, when the appropriation asked for was granted by the Senate unanimously, and when, in all probability, it would have been granted by the House could the proposition have been brought to the consideration of that body.

I am, with sentiments of high esteem, your obedient servant,

JOSEPH HENRY,
Secretary Smithsonian Institution.

HON. RUTHERFORD B. HAYES.



ROTUNDA, NATIONAL MUSEUM BUILDING.

In his message to the Forty-fifth Congress, first session, December 3, 1877, the President recommended "that an adequate appropriation be made for the establishment and conduct of a national museum under their [the Regents] supervision."

Acting upon the basis of information supplied during the previous session, the same bill was introduced in the House of Representatives (H. R. 2662) on January 21, 1878, by Senator Casey Young. It was referred to the Committee on Public Buildings and Grounds, which, through Mr. Young, submitted a report (No. 244) upon the measure on February 25, 1878. On March 6 following, the bill was again brought up, referred to the Committee of the Whole and placed on the Calendar, but no further action was taken. A similar bill (S. 1320) was submitted in the Senate by Senator Justin S. Morrill on May 27, 1878, and referred to the Committee on Public Buildings and Grounds.

The report of the House committee (No. 244) briefly sets forth the history and requirements of the Museum and the steps taken to secure the valuable collections exhibited at Philadelphia, and closes as follows:

The collections in the Smithsonian building now open to the public occupy about 30,000 square feet of floor space. It is quite within bounds to estimate that the articles stored away will require for their satisfactory exhibition between three and four times that area, even allowing for a great reduction of the objects by the elimination and distribution of the duplicate specimens. There is no provision whatever at present for the display of these articles, and unless Congress furnishes the means this magnificent property of the people will go to decay and destruction in the course of time, the animal products being destroyed rapidly by insects and many objects of a mineral or metallurgical character by rust.

As every day of delay in arranging and exhibiting this collection is accompanied with the question of erecting a suitable building for its accommodation and has occupied the attention of the Smithsonian Institution, a plan has been devised which, it is believed, will furnish the facilities required in the shortest possible interval of time and at the minimum of expense.

To erect an edifice of the necessary magnitude, in the style of architecture heretofore adopted by the Government for its use in Washington, would involve an expenditure of many millions of dollars, and it could not be completed and available for occupation in a shorter period than from five to eight years. Nevertheless, on a simple plan originally suggested by General Meigs, a building somewhat similar in character to those erected for the National Exposition, 300 feet square, or having an area of 90,000 square feet—something over two acres—perfectly fireproof, amply lighted, and properly adapted for all its objects, can be constructed for about \$250,000, and can be ready for occupation within ten months, or at most a year, from the time of its commencement.

By the plan contemplated everything would be on one floor, without any stairways or second story, no cellar or fireproof floor being required. The single floor of the building to be of concrete, and thus water and vermin proof; the walls and other portions of the building of brick, and the beams, rafters, and framework of the roof of iron, without a particle of wood.

It is therefore much to be desired that the means be furnished at an early day for the construction of this building, so that the rich material now belonging to the United States Government can be utilized.

It is believed that when properly arranged the National Museum of the United States will take rank as one of the great industrial and economical displays of the natural resources of the globe. The accommodation will then be afforded for the exhibition of the mineral wealth of every State and Territory, and the display of samples of every new mine, with all the appliances for rendering the study of the whole interesting and profitable. The coals, the marbles, and other ornamental minerals will be exhibited systematically; the useful and ornamental products and derivatives of the animal kingdom will be shown—not only such as relate to the United States, but with illustrations of the whole subject in other parts of the world—which can not fail to suggest new and important applications in this country. Illustrations of the food and other fishes of this and other countries, the best methods of securing them and of preparing them for the requirements of mankind, and the varied productions of the aboriginal races of North America can also be displayed on a proper scale.

During the second session of the same Congress the bill for a new building was again brought up in both Houses. Brief remarks were made in the Senate and the bill slightly amended in regard to the wording relative to location. It was passed as an item in the sundry civil act for 1880 in the following terms:

For a fireproof building for the use of the National Museum, 300 feet square, to be erected under the direction and supervision of the Regents of the Smithsonian Institution, in accordance with the plans now on file with the Joint Committee of Public Buildings and Grounds, on the southeastern portion of the grounds of the Smithsonian Institution, \$250,000: said building to be placed east of the Smithsonian Institution, leaving a roadway between it and the latter of not less than 50 feet, with its north front on a line with the south face of the buildings of the Agricultural Department and of the Smithsonian Institution; and all expenditures for the purposes herein mentioned, not including anything for architectural plans, shall be audited by the proper officers of the Treasury Department.

The following extracts from the report of the building commission, submitted January 19, 1880, give a summary of the building operations for 1879:

Anticipating the early action of Congress in the premises, the Board of Regents, on the 17th of January, 1879, adopted the following resolution:

Resolved, That the executive committee of the Board, or a majority thereof, and the Secretary be, and they are hereby, authorized and empowered to act for and in the name of the Board of Regents in carrying into effect the provisions of any act of Congress that may be passed providing for the erection of a building for the National Museum."

Accordingly, on the 7th of March, 1879, Hon. Peter Parker and Gen. W. T. Sherman, the resident members of the executive committee, with the Secretary, met in the office of the Institution, and after organizing under the title of "National Museum Building Commission," of which Gen. W. T. Sherman was chosen chairman, proceeded to adopt such measures as in their opinion appeared best calculated to realize, with the least possible delay, the intention of Congress.

The committee at the outset invited Gen. M. C. Meigs, Quartermaster-General U. S. Army, to act in the capacity of consulting engineer to the commission, and also selected Messrs. Cluss & Schulze, whose plans for the new building were those approved by Congress, as superintending architects. Mr. Daniel Leech was appointed secretary of the commission.



NORTH HALL, NATIONAL MUSEUM BUILDING. HALL OF AMERICAN HISTORY.

To remove as far as possible any doubt as to the sufficiency of the appropriation for a building in accordance with the plans approved by Congress, Mr. Edward Clark, Architect of the Capitol, and General Meigs, after carefully considering the provisional estimates of the architects, informed the commission that in their opinion the amount was sufficient for the purpose.

To obtain a clear understanding of the intent of Congress in making the appropriation, as well as to ascertain how far, if desirable, the commission might be authorized to depart from the plans before the Committees of Public Buildings and Grounds when the act was passed, the chairmen of the respective committees (Hon. H. L. Dawes and Hon. Philip Cook) were consulted; whereupon these gentlemen officially informed the commission "that, provided the general design be retained, it was not their intention, nor that of their committees, to confine the Board of Regents of the Smithsonian Institution to the minor details of the aforesaid plans, but to authorize any modifications that might appear to them desirable in the interest of economy or for the better adaptation of the building to its object."

On ascertaining that the appropriation could be made immediately available under the clause directing that the accounts should be audited by the proper officers of the Treasury Department, the Secretary of the Treasury was, on the 27th of March, requested to designate some one of his force to act as disbursing officer. Accordingly Maj. T. J. Hobbs, disbursing clerk of the Department, was selected, and payments were authorized to be made by him on vouchers approved by the Secretary of the Smithsonian Institution as provided for in the following resolution:

Resolved, That the commission appointed by the Board of Regents of the Smithsonian Institution to superintend the construction of a new fireproof building for the National Museum hereby authorize Prof. S. F. Baird, Secretary of the Institution, to act as their agent to approve for payment by Thomas J. Hobbs, all bills for services and supplies from such funds as are placed in the hands of the latter by said commission for such purposes, and the Secretary of the Treasury is hereby respectfully requested to instruct Thomas J. Hobbs, disbursing agent, to pay any bills when thus certified and found to be otherwise technically correct."

Having thus prepared the way to a commencement of active operations, specifications were at once prepared and proposals invited for carrying on the work. Ground was broken on the 17th of April, 1879.

The concrete foundations were begun on the 29th of April, and the brickwork of the walls on the 21st of May, the main walls being completed on the 1st day of November.

In consequence of the low prices of the more important building materials, very favorable contracts were made, especially for the brick required and for the ironwork, since the price of iron advanced very materially within a few months from the date referred to. The same is true with regard to glass, bricks, and in fact almost all building materials.

* * * * *

The estimate of \$250,000 for the construction of a museum building did not include the heating apparatus. As the work progressed, however, it became evident that all the underground piping for water, gas, and steam, at least, could be obtained from the fund.

In anticipation of an appropriation for the purpose, it was deemed best to obtain provisional bids for a steam-heating apparatus. Accordingly proposals were invited: First, for the underground pipes; second, for the boilers; third, for the radiators. The aggregate of the estimates for the three items varied from \$13,940 to \$55,680.

The lowest bid was rejected on account of inadequacy of the supply of heat. The next to the lowest was that of Messrs. Baker, Smith & Co., for \$19,768, which was accepted, and a contract made for the underground pipes for \$5,770.

An appropriation of \$30,000 has been asked of Congress for the completion of the

heating apparatus throughout, for the gas and water fixtures and the electric apparatus required for clocks in the building, for signals, alarms, etc.

Before the building can be occupied it must of course be furnished and fitted up with cases, of which, as might be expected, a large provision is required. According to a calculation, the cases that will be needed, if placed end to end, will extend to a distance of more than 8,000 feet, with a total of shelving surface of about 75,000 square feet. The frontage of the cases will be over 14,000 feet, so that, allowing for the crossing from one case to another, a journey of at least 3 miles will be required even to take a cursory glance at all the objects in the collection.

The question of the best material for the cases has not been definitely settled, the choice lying between iron and hard wood. In order to assist in determining this question satisfactorily, arrangements have been made to obtain working plans of the cases used not only in a number of museums in the United States, especially in Cambridge, Boston, and New York, but also in Europe. The new building now being erected for the collections of the British Museum is one where it is supposed the best experience has been made use of in the plans of the cases, and arrangements have been made to obtain copies of the same. The new iron cases of the national museum at Dresden are also under investigation. Iron is more expensive than wood, but involves less danger of decay, and there is also an especial advantage in the fact that the material may be so much thinner as to increase the interior space, while the objects in the cases are less obscured. Of course it must not be forgotten that the National Museum is expected to discharge its functions for an indefinite period of years.

The provision of Congress directed that the new building should be placed to the east of the present Smithsonian edifice, at least 50 feet from its southeastern corner. The question was considered of having the interval greater than this minimum, but it was found that this would involve the extension of the building beyond the boundary of the Smithsonian reservation and carry it to the unassigned portion of the square. Although there was nothing in the act to prevent this encroachment, yet in view of the possibility that the southeastern portion of the public land between Seventh and Twelfth streets would be required for some other purposes, perhaps for a Congressional Library, it was thought best to encroach upon it as little as possible.

In addition to its answering the purpose for which it was primarily intended, it is confidently believed that the new National Museum building will exercise an important function in serving as a model for similar establishments elsewhere.

Of course in a city where the cost of land is a matter of important consideration, the one-story plan can not always be carried out, the usual position of story above story being necessary to secure the desired space. Most colleges and universities, however, have ample grounds belonging to them, the occupation of which by large buildings is allowable. Under such circumstances the same amount of fireproof space can be had for from two-thirds to one-half the usual cost.

The office of member of the building commission has been by no means a sinecure, weekly meetings having been held, with scarcely an interruption, from the first organization, as shown by the full reports kept of the proceedings. General Meigs, as consulting engineer, until his recent departure on a tour of duty, was present at every meeting and continually aided the commission by his advice, rendered so valuable by his long familiarity with building operations on a large scale and with the whole question of the proper construction of contracts. He visited the grounds nearly every day and closely inspected the progress of the work. To him are also due valuable suggestions on the methods of covering the roofs and on other details.

Two subsequent reports were made by the building commission—one covering the year 1880, the other 1881. In these the progress of the work and the dates of completion of important parts of the building



SOUTH HALL, NATIONAL MUSEUM BUILDING. EXHIBITION OF MAMMALS.

were noted. The roofs were finished in April, 1880, and the plastering by the latter part of July. In the interest of economy in heating all outside windows were furnished with two panes of glass. Wooden floors were laid in 1880 in all the halls, except the four courts, the four main halls or naves, and the rotunda. Congress was asked for an appropriation to defray the expense of a marble or tile floor for the naves and rotunda, and \$26,000 was allowed for this purpose, becoming available in the summer of 1881. The rotunda was then supplied with a floor of encaustic tiles and the main halls with floors of marble tiles. The approaches to the building were constructed out of the original appropriation.

The final report of the commission, dated January 2, 1882, closes as follows:

In closing this its third annual report, the National Museum building commission congratulates the Regents that the new building for the National Museum is so far completed as to be ready for occupancy, and in now asking the Board to take charge of the edifice the commission begs to refer to the important fact that, while a building is presented equal in every respect to what was anticipated in case provision should be made for additional quarters for the national collections intrusted to the care of the Smithsonian Institution, instead of incurring a deficiency, the fund has been so managed as to have to its credit at the present moment an available balance of some thousands of dollars.

Having fulfilled the duties with which it was charged by your resolution of January 17, 1879, the commission would respectfully ask to be discharged and to be authorized to turn over to the Secretary of the Smithsonian Institution the building itself, and to the United States Treasury whatever balance of money may remain after liquidating the last liability on account of the construction of the edifice.

The appropriations which had been made for the building were as follows:

Building.....	\$250,000
Steam heating apparatus.....	25,000
Water, gas, and electric apparatus.....	12,500
Marble and tile flooring.....	26,000
Special sewer connection.....	1,900
Total	315,400

The subjects intended to be represented in the new building were stated by Secretary Baird, in his report for 1879, to be as follows:

The period of complete installation of collections on hand and the opening of the building to the public will depend upon the amount of the appropriation and the rapidity with which the contractors may complete their work. The new building will be devoted more particularly to industrial exhibits, intended to show the animal and mineral resources of the United States and their practical applications to the wants or luxuries of man. The department of anthropology will also be largely represented. How far natural history can find a place in the building will depend upon the space required for the collections mentioned. It is confidently expected that this building when finished will be one of the most attractive objects of the kind extant and but little inferior to the celebrated museums of foreign countries.

In his report for 1880 he says:

I now have the pleasure of stating that the work has been in the greater part completed during the year 1880 and that a portion of the building is already occupied for its legitimate objects.

The details of progress and completion will be given in full in the report of the building committee and of the architect, to which I would refer. It will be sufficient to say here that the work has all been done within the estimates and that it promises to be even more suitable to its purpose than was anticipated. All the requirements in regard to light and heat are fully met, and in this respect and in that of its slight cost in proportion to the space obtained, the building is believed to have no parallel in the country. Including the building proper, the steam heating apparatus, the gas and water fixtures, and all their accessories, the cost has amounted to less than \$3 per square foot of ground floor and to about 6 cents per cubic foot of entire capacity.

The first use of the building was for the inaugural reception to President Garfield on March 4, 1881, which was granted in accordance with the following resolution of the Regents at a meeting held on December 8, 1880:

Whereas the new Museum building is unfinished and not ready for occupancy of the Government collections, and whereas such a contingency will not again occur, and that no precedent is to be given for the use of the building for other purposes:

Resolved, That the use of the new National Museum building be granted for the inaugural reception of the President of the United States on the 4th of March, 1881, and that the Secretary of the Smithsonian Institution be authorized to make all necessary arrangements for this purpose.

In 1881 Professor Baird stated that the building might then be considered as completed and ready for its final occupation by the various departments which have been assigned to it. Some small additions and alterations were still required to be made, but they did not interfere with the general use of the structure. In the beginning certain office and laboratory quarters were granted to the United States Geological Survey, especially in the northeast pavilion, and they continued to be so used for several years.

It was soon recognized that the building was too small to provide all the necessary accommodations, even though the Museum continued in possession of the same space in the Smithsonian building as before, and the inconvenience from this source increased rapidly with time. It thus also resulted that not all of the halls could be used for exhibition purposes as intended, and until lately some of them have always been closed to the public, that they might be employed for storage, for unpacking, or for workrooms.

There have been from the beginning many changes in the assignment of space to the different departments, but transfers from one building to the other have been few since the occupation of the newer structure. The clearing up of the exhibition halls, which were never in as good condition as now, has been mainly accomplished by the heroic method of sending large quantities of specimens to outside stor-



WEST HALL, NATIONAL MUSEUM BUILDING. EXHIBITION OF ÉTHNOLOGY.

age and by the fitting up of a few outside workrooms. Another factor in this direction has been the construction of a number of galleries, as explained below.

Secretary Baird says, in his report for 1882, that—

The Museum building was received from the hands of the architects in so complete a state that but little remained to be done beyond the tinting of a portion of the walls and the filling up of some of the alcoves with canvas frames, etc. There is yet much to be done, however, in the construction of the necessary cases for the accommodation of collections.

The building of cases has, in fact, never ceased, for, while the more urgent needs were early supplied, cases of one description or another have been added from year to year. Many cases used at national expositions have been returned in so defaced a condition that it has been necessary to reject or rebuild them, and cases of new and improved patterns have replaced many of the older ones.

In 1883 Professor Baird remarks that the "building continues to preserve the reputation it has acquired as representing the maximum of convenience and adaptation to its purposes with the minimum of original cost and expense for repairs;" and in 1885 he states that the "building is in excellent condition and has required comparatively little in the way of repairs."

After not many years, however, certain weak points began to develop, and these have been the cause of much concern and have necessitated almost continuous repairs, though seldom at great expense. The walls are essentially substantial, but the roof was constructed at too little cost and is far below the standard of the brickwork. Its weakness and incompleteness is evident both in the supporting framework and in the covering. The framework has given way in places under heavy falls of snow, and the covering has developed numerous leaks, most commonly about the breaks in the roof, but elsewhere as well, and the constant attention of one mechanic has been insufficient to keep these leaks under control. While it is intended soon to renew the worst of this covering, it is now quite certain that a considerable part of the roof must be wholly rebuilt before many years.

The leaks from the roof have so constantly defaced the inside walls of the naves and courts that only recently has it been deemed advisable to repaint them, a work which was mainly accomplished during 1902 and 1903, and which has greatly improved the appearance of the exhibition halls.

The principal other changes in the interior of the building, in the nature of permanent improvements, have been the replacement of the wooden floors with cement, the building of galleries in nearly all the halls, and the addition of some skylights. The first has improved both the conditions and the appearance of the halls, and as the floors were without proper foundation the former wooden covering was

inadequate to keep out the moisture or impurities from the soil. The galleries have materially increased the amount of space, and the new skylights were rendered necessary by their introduction. These features may be briefly referred to as follows:

In some of the preliminary drawings for the museum building a tier of galleries is shown in each of the exhibition halls, but in the plans as finally adopted and presented to Congress these features were not represented. The height of the several halls, however, was made sufficient to permit of their introduction at any time. In view of the failure to secure early action by Congress toward the erection of a third building, it was decided to urge the construction of these galleries, in order that some additional space might be acquired. The entire sum needed for such a purpose was not requested at once, but the estimates for 1893, 1894, 1895, and 1896 each contained an item of \$8,000. These failed to receive favorable consideration by Congress, but the amount named was appropriated in the sundry civil act for 1897, and other appropriations followed, namely, \$8,000 in 1898, \$10,000 in 1899, and \$5,000 in 1902, making a total of \$31,000 for this purpose. From this amount galleries were erected in all the halls, courts, and ranges, except the north hall and the northeast and east-north-ranges. In the southeast range the galleries have been extended so as to form a complete second floor. Though intended primarily for exhibition purposes, it has been necessary to assign certain of the galleries to the storage of reserve collections and as workrooms, as elsewhere explained.

The only substantial floors laid in the beginning were those in the rotunda and the four main halls, as already described, the former being of encaustic tiles, the latter of marble squares. The remaining floors in all parts of the main building were of wood. The latter were allowed to remain until thoroughly worn out, being gradually replaced by more durable material. These changes began in 1891 and were not completed until 1900. The first of the new floors, and, in fact, the greater number, were constructed of cement, granito, and granolithic; the last four were made of terrazzo pavement, small irregular pieces of marble, laid in cement, and are the most satisfactory, in appearance at least.

The other work of repair and alteration, conducted at the expense of the general appropriation for this purpose, need not be analyzed here. It has produced, as a whole, many marked improvements, though for the most part it has been directed toward maintaining the building in as fair a condition as the funds have permitted.

NATIONAL MUSEUM BUILDING.

DESCRIPTION.

In describing the present Museum building,^a the architects, Messrs. Cluss & Schulze, spoke of it as follows:

A modernized Romanesque style of architecture was adopted for the new building in order to keep up a relationship with the Smithsonian building, which is designed in Norman, a variety of this style. To modernize this style was found necessary on account of the different building material, and to do justice to the purposes of the building with its modern demands of perfect safety and elegance of construction, of greatest possible available floor space, of easy communications, efficient drainage, a well-calculated and pleasing admission of light, free circulation of air, and all other hygienic dicta.

The external architecture is based upon the general arrangement of the interior, and shows plainly the prominence of the four naves and the careful management of the light for the central portion of the building. The main entrances are in the centers of each façade between two lofty towers of 86 feet height, which act as buttresses for the naves. Between the towers, and receding from the doorways, there are large arched windows set with ornamented glass, and above those the gables of the naves are formed; they contain inscription plates, and are crowned by allegorical groups of statuary. The group over the northern gable, designed by C. Buberl, of New York, already in position, introduces Columbia as the protectress of science and industry. * * *

On the whole, the one-story plan which has prevailed among experts ever since the Paris exhibition of 1867 has been adopted. But by the introduction of upper stories on those outlying sections reserved for offices, ample office room has been secured without encroaching materially upon the floor space within the square of 300 feet to which the building was primarily limited.

Whatever may be the style of architecture represented, the exterior of the building can not lay claim to dignity of appearance or to any degree of esthetic merit, although by a symmetrical arrangement of towers and pavilions some relief is given to the low outer walls, and, viewed a short distance off, the tops of the former mingle with the roofs and lantern skylights to produce a not unpicturesque, though crude, effect. The walls are of brick, the roofs principally of iron and slate. The former were well constructed, and should long remain in good condition, but the latter were early found to be, in greater part, unsuitable and insecure. These defects were largely due to the smallness of the appropriation, only \$250,000, which did not permit of the best class of workmanship and material, and the failure to produce a better architectural effect can probably also be accounted for in the same way.

The interior is plain, and its walls are frequently defaced through the imperfections of the roofs, but the many criticisms which, from the beginning, have been directed against the arrangement of the building are entirely unwarranted. For the purpose for which it was erected, the exhibition of specimens, it probably has no superior

^a Annual Report of the Smithsonian Institution for 1879, pp. 130, 131.

in this country and few, if any, abroad. The critics have simply confounded cheapness and crudeness with inadaptation to purpose. It is a square building of a single story, consisting of four large naves and a central rotunda in the shape of a Greek cross, with ranges and covered courts filling in the corners, so as to produce a solid or continuous structure every part of which, under the original plan, was well lighted. The ranges have large windows, and the naves and courts both skylights and clerestory windows. It is the plan so often adopted for exposition buildings, and also at times for permanent structures, and is especially convenient to the visitor, in that he has no stairs to climb. There has at no time in the past been any difficulty in so installing the display collections that they could be distinctly seen and the labels read. Within a few years, however, galleries have been built in nearly all the halls, as it was necessary to increase the amount of space. The height of the halls has permitted this to be done without injury to the general effect, but to some extent the lighting has been interfered with, though not so much but that it can be remedied.

This building was planned, as above stated, essentially for exhibition purposes. The space available for laboratories and storage quarters, however, is wholly inadequate, though convenient and well lighted. This may be considered as one of the main defects of the interior, as it is the one most noticeable to the specialist who wants working room, and seldom refers to the exhibition series. A remedy for this condition, recommended and urged upon Congress by Professor Baird, was the erection of a smaller fireproof building nearby, entirely for laboratory and storage needs, and especially for the safeguarding of the alcoholic collections. His ideas were never carried out, but it is hoped that in the new building all of these requirements will be provided.

The building has, moreover, served an excellent purpose as an object lesson, since the experience gained in its construction and furnishing, and in the installation of its collections, has been invaluable in the preparations for the newer structure. It will undoubtedly continue to be occupied for many years to come, and its complete repair will probably be undertaken as soon as the new building is finished.

The building under description stands on the southeast corner of the reservation granted to the Smithsonian Institution by the fundamental act of 1846, and, in fact, overreaches its eastern boundary to about the extent of the width of Ninth street SW. Its north or front face is about on a line with the south face of the Smithsonian building, from which its nearest corner is distant about 50 feet, while its rear face adjoins the sidewalk on B street south.

The main part of the building is about 300 feet square and one story high throughout, though of very different elevations. In the center



NORTHEAST COURT, NATIONAL MUSEUM BUILDING. EXHIBITION OF GRAPHIC ARTS AND CERAMICS.

of each front, at the sides of the entrance, are two tall towers, and at the corners are large pavilions, all of which project about $12\frac{1}{2}$ feet from the main walls, thus making the extreme linear dimensions of the building about 325 feet. The amount of ground covered is 97,786 square feet, or about $2\frac{1}{4}$ acres.

The primary feature of the plan consists of four naves or main halls, the largest in the building, which radiate in the form of a Greek cross from a central rotunda to the towers above mentioned. Following the outer walls and extending from the naves to the pavilions are a series of eight ranges, two on each side. This arrangement leaves four courts, inclosed by the naves and ranges, which are roofed over and form parts of the actual building. There are, therefore, 17 halls in the body of the building, all designed for exhibition purposes. These halls are separated by heavy brick walls, having numerous broad arched openings reaching nearly to the ceiling. The lower part of these openings both from the floor and from the galleries are filled in with cases or screens, except where needed as passageways. The main halls open broadly into the rotunda. There is one entrance into each court, and one at each end of the several ranges for the circulation of the public.

The central rotunda attains the greatest height. It is octagonal below, with a maximum diameter of 65 feet, and is surmounted by a 16-sided polygon, 67 feet in diameter, which contains a tier of large windows, and is covered with a slate roof rising to a central lantern. The height is 77 feet on the side walls, and 108 feet to the top of the lantern finial. The four main halls, extending from the inner walls of the towers to the rotunda, are 117 feet long by 65 feet wide, their height being 42 feet to the top of the side walls, and 56 feet to the ridge of the roof. The courts are about 63 feet square and of the same wall height as the main halls. The ranges are all a little less than 50 feet wide. Those on the north and south sides of the building are 89 feet long, and those on the east and west sides 63 feet long, the lesser length of the latter being due to extensions from the adjoining pavilions. They are covered with lean-to roofs, their interior height being $26\frac{1}{2}$ feet at the outer walls and 31 feet at the inner.

The several divisions of the building are clearly indicated on the exterior by the unequal heights of the walls and roofs. A description of these features as seen when approaching the north front will answer for the other sides, as all are essentially alike. In the center of the north front is the main entrance, bordered by a tall, arched framework of Ohio sandstone. Above and back of the entrance are the face and gable end of the north hall, reaching to a height of about 55 feet above the ground, bearing a stone plate with the inscription "National Museum, 1879," and surmounted by an allegorical group of statuary representing Columbia as the protectress of science and industry. At

each side of the entrance is one of the towers above mentioned, about 27 feet square and three stories high, topped by a steep roof, with small dormer windows toward the base. The extreme heights of these towers is 85½ feet to the top of the finial.

Extending on each side from the towers to the corner pavilions are curtain walls, 27½ feet high and 87 feet long, with seven broad, arched windows, 8 feet 10 inches wide and 13 feet 7 inches high, the glass in the latter being arranged in three vertical series. Between the windows are narrow buttresses, uniting above in arches. The pavilions are about 40 feet square and 36½ feet high to the eaves, the roofs being much lower and flatter than on the towers. They are divided into three stories, besides a basement, each lighted by eight large, arched windows, except the upper story, which has three small windows grouped in the center on each side. The top of each pavilion has a large lantern skylight.

From the curtain walls the lean-to metal roof rises over the ranges with moderate slope, and abuts against the higher walls of the courts and main halls, both of which have a row of clerestory windows on each side facing the ranges, those of the main halls extending back only as far as the courts. The courts have a large square lantern, from which the roof descends on all four sides to the level of the gutters on the main halls. The main halls have plain hip roofs about the same height as those of the courts, with elongate lantern skylights in the middle. The dome of the rotunda, as before explained, rises above all other portions of the roof, being the most conspicuous feature of the top of the building. All the roofs are covered with slate except those of the ranges, which are of tin. The slates are nailed to small pieces of wood, fitted into small L-shaped pieces of iron, and the plaster of the ceiling is laid directly upon the rough inner surface so formed. Besides the lanterns before mentioned, a number of small skylights and ventilators have been built over some of the ranges and courts, especially where the recently constructed galleries have interfered with the lighting.

The entire framework, as well as the inner sheathing of the roofs, are exposed to view, this plan having been followed in the interest of economy. The roofs of the main halls, the rotunda, and the courts are supported by iron trusses of the Pratt pattern; those over the ranges by triangular girders of rivited angle iron. In 1894 some of the purlines in the main halls near the rotunda began to buckle and were reinforced with angle iron. By 1900 all of the iron work over the main halls had begun to show signs of weakness, caused by alternate expansion and contraction, thus producing many leaks in the slate covering, and the entire framework was accordingly braced and strengthened by means of angle steel. The woodwork about the lanterns was also replaced by iron, and other improvements were made.

The inner surface of all the roofs was originally covered with a thin coat of plaster. In the ranges the metal top was underlaid by fireproof gratings, to which the plaster was applied. As the keying proved insufficient or the plaster not strong enough, large pieces began to give way at the very beginning, and to eliminate this source of danger all the plaster was removed in the ranges, leaving the gratings uncovered. After being painted, however, the appearance of the ceiling proved not to be out of keeping with its surroundings. In one range the ceiling was at the same time covered with corrugated iron, leaving an air space between it and the tin roof above, and it was thought by the architects that this arrangement would tend to regulate the temperature of the halls. Nothing further, however, has been done in this direction.

Through failure to secure additional space by the erection of a new building, galleries began to be added in the present building in 1896, and their construction was continued from year to year until 1902. They are now contained in all the halls except the north hall and the north-east and east-north ranges, while in the south-east range they have been united so as to form a complete second story. The main entrances to the galleries are from the rotunda, and nearly the entire series may be traversed without descending to the floor. The width of the galleries is from 10 to 14 feet and their height above the floor 16 feet. They are of very simple construction, consisting of plain iron pillars and girders, with brick archways and cement floors. The area gained by this means has amounted to 25,828 square feet.

All of the masonry of the exterior walls above ground, except as noted below, is of red brick laid in black mortar, with numerous horizontal courses of black brick, and a considerable quantity of buff brick in courses and designs to relieve the monotony of color. A number of blue brick were originally employed in connection with the buff, but they were subsequently painted black. There is a base course of granite around the entire building, but the window sills, copings, etc., are of gray Ohio sandstone.

The interior walls are plastered in a sand finish, and were originally covered with a gray water-color paint, poorly adapted as a background for installation. The exhibition cases have been mainly constructed with mahogany frames, for which maroon was found to be a most harmonizing and effective surrounding, and since about 1883 most of the walls have been painted this color to a height of about 12 feet from the floor, the original color remaining for the most part above. The only decorations were stenciled figures on the walls of the rotunda and over the archways at the inner ends of the main halls. In 1902, however, experiments were made looking to a change of color, with what is regarded as very satisfactory results. The colors used in the main halls and courts are a light red to a height of 15 feet, followed

by a deep ivory, the ceilings being of a lighter ivory. In the rotunda the colors range from olive below to ivory above, with stencil decorations as shown in the plates. This color scheme has not been extended to the ranges, which have been repainted from time to time in various colors.

In connection with the original construction of the building, though under a special appropriation, a floor of encaustic tiles was laid in the rotunda, and floors of marble squares of various colors in the four large halls or naves. The marble tiling is surrounded by a frieze of dark-blue slate, of sufficient width to bridge the ducts containing the steam pipes, wires, etc., while around the frieze is a border of parti-colored Portland cement. The floors in all the other halls were constructed of yellow pine, partly in preparation for the Garfield inaugural ball of March 4, 1881, out of the local fund for that purpose. These floors were laid upon a concrete base and began to decay after a very few years, requiring frequent and extensive repairs. In 1891 it became necessary to replace several of them with more substantial material, and this continued down to 1898, when the last of the wooden floors disappeared. The substitutes have been cement, granite, and finally terrazzo, the last being the most pleasing and apparently the most durable. Other floor changes have consisted in the laying of mosaic pavements in the vestibules of the main entrance and the northwest entrance. In the pavilions and towers the different stories are separated by arches of brick and concrete, supported by iron beams, the floor covering being of Florida pine. Thus the building has been rendered essentially fireproof in all parts of its construction.

An octagonal fountain basin, 20 feet in diameter, composed of a rim of molded polished granite and cement floor, occupies the middle of the rotunda. From its center rises the original plaster model of the goddess of liberty which, in bronze, surmounts the Dome of the United States Capitol.

As before stated, the building was constructed with four main entrances, one at the center of each front, but only two of these are now used as such, that on the north side being for the public and that on the east side for the delivery of supplies and specimens. The entrances on the south and west have been closed and, together with the adjacent space, converted into headquarters for the departments of biology and anthropology, respectively. There is also a small entrance on the south side of the northwest pavilion leading directly to the administrative offices.

The north, or main, entrance has two sets of double doors of black walnut paneled with heavy plate glass, the large arched space above being filled in with a latticework of walnut set with glass. In front of the entrance is a mosaic platform, bordered by granite coping, and



WEST-SOUTH RANGE, NATIONAL MUSEUM BUILDING. EXHIBITION OF SYSTEMATIC GEOLOGY.

approached by four low granite steps 37 feet long, which are flanked by molded base blocks carrying large candelabra.

The smallness of the original appropriation prevented the construction of a basement under the main building, which would have added a large amount of space for storage and workrooms. Small cellars were built, however, under the southwest pavilion for the heating boilers and the supply of fuel and under the northwest and northeast pavilions for miscellaneous storage. Advantage was taken of the changes in the heating plant in 1901 to construct an underground tunnel, leading from the northwest pavilion of the Museum building to the east wing of the Smithsonian building, primarily to convey the heating pipes, electrical conduits, etc., but of suitable dimensions to serve as a passageway for individuals, being 70 feet long, 5 feet wide, and 7 feet high. It has proved of great convenience in stormy weather, but fills a much more important purpose at night by giving the small watch force a ready means of communication between the two buildings.

The building is exceedingly well lighted, considering its solid, one-story construction. The ranges are amply provided with large windows, the higher naves and courts have both skylights and clerestory windows, and the naves also receive much light from the large windows between the central towers. The exhibition collections can, therefore, as a rule, be readily seen, though the galleries are responsible for the creation of some dark places which did not formerly exist. The lighting of the rooms in the towers and pavilions is also excellent. The windows are practically all of the same general pattern, and in the beginning all were glazed with double panes of glass, the better to retain the heat in winter, but about half of these double panes in the towers and pavilions have been made single. Ventilation is provided for by means of movable panes of glass in the side windows and lanterns, many sashes being pivoted in iron frames for that purpose, and also in places by ventilators in the roof.

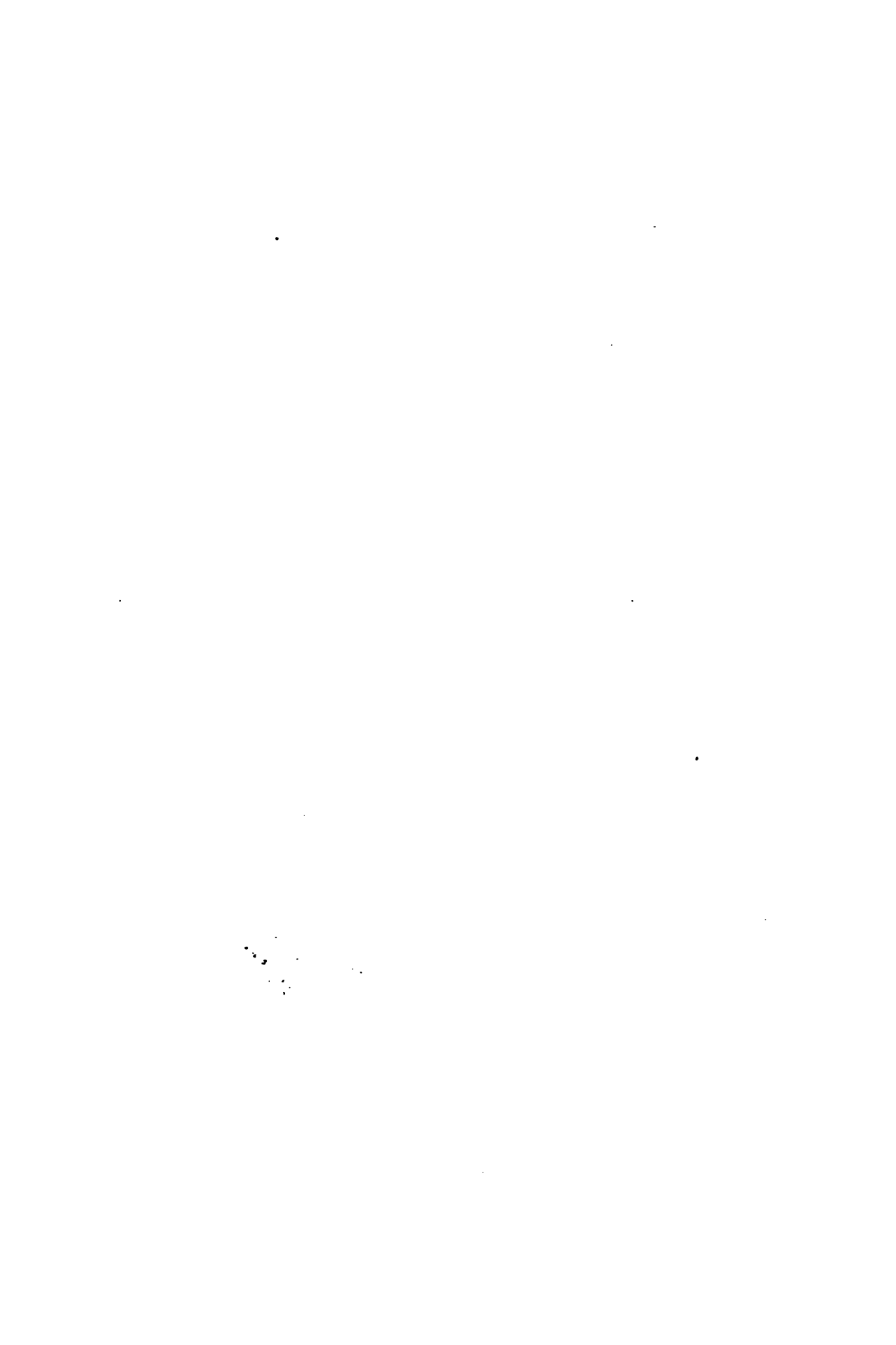
In 1881 the Museum was presented by the Brush Electrical Company with a number of storage cells and a dynamo suitable for operating between 30 and 40 incandescent and 16-candle power lamps in the lecture hall when evening meetings were held. In 1895 the basement of the south tower of the Smithsonian Institution was furnished with a gas engine and dynamo of sufficient power to maintain a small system of incandescent lamps in the Smithsonian offices and in a number of workrooms and other dark places in both buildings. This plant was totally inadequate for the requirements, however, and Congress appropriated \$3,500 in 1901, and \$5,000 in 1902, for a complete installation of electric wires and fixtures throughout the Museum building, which was practically finished in the latter year, the work being done by employees of the Museum. This installation extends to the public halls, offices, laboratories, storerooms, and workshops, but in the

Smithsonian building it reaches only some of the offices and corridors, a few storerooms, and the dark center of the main exhibition hall. The current for lighting is taken from the mains of one of the city companies at the southwest corner of the Museum building. On only a few occasions has the entire Museum building been lighted at night, and regular night opening for the public can not be undertaken without an additional appropriation to cover the extra expense of electric current and watchmen.

All of the cases in the exhibition halls containing especially valuable specimens, as in the historical and gem collections, are supplied with electric burglar alarms. There is also a system of electric call boxes distributed through both buildings, which must be visited every hour during the night watches, any failure to perform this service being at once automatically announced at the office of the Mutual District Messenger Company in the city. For the prompt conduct of business it has likewise been found necessary to make extensive use of the telephone system for communication between offices in different parts of the building and with the city.

The heating of the Museum building was until 1901 accomplished by means of four 60-horsepower steam boilers. In the latter year these were replaced by two 150-horsepower high-pressure tubular boilers, whose capacity is sufficient to heat both of the large buildings and the smaller adjacent buildings on the Mall. The boiler room is in the basement of the southwest pavilion. There are also two boilers of 48-horsepower in the basement of the Smithsonian building, which can be used in case of emergency. The new plant is very satisfactory, and much more economical than the old one.

Soon after the Museum building was completed, the north-west range was set apart as a temporary lecture hall, being furnished with a platform, lantern screen, and several hundred folding chairs. This was one of the smaller ranges, and proving inadequate for the requirements, its fittings, somewhat improved, were transferred to the west-north range, which continued to be assigned to this purpose, though sometimes used for the preparation of exhibits, until the increasing demands for exhibition space caused it to be turned over to the Department of Anthropology. It was found, however, practically essential to have some place for scientific meetings, and by placing material in storage it became possible to vacate for this purpose the east-north range, immediately to the east of the main entrance, and thus equally as convenient as the former range. The hall remains in a condition suitable to be turned over to exhibition uses at any time, but its fixtures for lecture purposes are more permanent in character than before. The walls and ceiling have been painted in several tints of green. There is a large speaker's platform and a lantern screen, and on the opposite side a smaller platform or balcony, where the lantern





LECTURE HALL, NATIONAL MUSEUM BUILDING.

can be permanently installed. Movable armchairs are used for seats, and a series of screens are in readiness to reduce or enlarge the lecture space, according to the requirements. The furniture is entirely of oak. The preparation of this new lecture hall was accomplished in 1901, under a special Congressional appropriation.

The three floor rooms of the east tower south of the entrance, with a slight addition for kitchen purposes, were utilized for a lunch room until 1901. In that year, however, the addition referred to was extended southward to a total length of 77 feet, thus somewhat enlarging and improving the conditions, but there is no way of providing a suitable lunch room in the present building, important as this feature is to the employees and to such visitors as spend much time about the Museum.

In connection with the plans of the building (pp. 299-302) a list is given of the halls and of all the rooms contained in the several towers and pavilions, together with their sizes and an explanation of the uses to which each is put. The exhibitions in geology and in anthropology, except the single division of archæology, are entirely in this building. In biology only the mammals, reptiles, fishes, and comparative anatomy are represented here, the remaining divisions being provided for in the Smithsonian building. All of the galleries as well as the halls were designed for exhibition purposes, but three or four of the former are now used for storage, and one for the library. The administrative offices and the headquarters for the three scientific departments are in this building, as well as most of the scientific laboratories.

BUILDING FOR THE ALCOHOLIC COLLECTIONS.

Professor Baird stated in his report for 1884 that—

The presence of alcoholic specimens in large numbers, so important in a scientific point of view, greatly endangers the safety of museum buildings and their contents, and most of the establishments in Europe have lately taken the precaution to construct separate buildings peculiarly adapted for the purpose. An application was made at the last session of Congress for an appropriation to put up a similar building in the grounds of the Institution, but it was not acted upon favorably.

The estimate was as follows:

For the erection of a fireproof brick storage building east of the National Museum, for receiving, unpacking, assorting, and storing the natural-history collections of the Government, to replace the wooden structures now used for the purpose, \$10,000.

The estimates were renewed for 1886 and 1887 in the following terms:

For the erection of a fireproof building for storing the alcoholic collections of the National Museum, \$15,000.

(NOTE.—The safety of the interior of the National Museum and the Smithsonian building is endangered by the large number of alcoholic specimens kept therein, and it is considered by public museums, both at home and abroad, very important to

have a separate building for their reception and preservation. There are at present no suitable accommodations for these collections.)

In 1885 Secretary Baird remarked that—

Although the present building is practically fireproof, yet should a fire be started in the vicinity of these [the alcoholic] specimens it is probable that much damage would be done by the ignition of the many thousands of gallons of alcohol, and the destruction of the specimens and of the jars in which they are contained.

Again in 1886 he refers to the danger of the destruction not only of the alcoholic specimens themselves, but of other near-by collections should fire break out among the former. All of these propositions failed to receive consideration and the matter was not renewed, as it was then expected to make provision for the alcoholic specimens in the proposed new Museum building.

In connection with the appropriations for 1899, however, an estimate was submitted to Congress for a larger fireproof building to serve essentially the same purpose, fronting on B street south, between the National Museum and the Army Medical Museum, appropriate in appearance to the former building. It was designed to be 130 feet long by 50 feet wide, and intended to be used for both workshops and storage purposes, thus replacing all of the temporary buildings then in use. It failed to receive favorable action, however. The wording of the item was as follows:

For the erection of a fireproof building for workshop and storage purposes for the National Museum, said building to be constructed under the direction of the Superintendent of the Library of Congress in accordance with the approval of the Secretary of the Smithsonian Institution, \$50,000.

TEMPORARY AND RENTED BUILDINGS.

The crowded conditions in the Smithsonian and Museum buildings have necessitated the erection from time to time of small frame structures on the Smithsonian and Armory squares, and the renting of buildings south of B street south, for the requirements either of workshops and storage, or of the preparation of exhibits for expositions. The use of the Armory building and the erection of a brick laboratory have already been referred to.

In 1882 a shed was built to the westward of the Armory building, a part of which was used for the shelter of Fish Commission cars, and the remainder filled with the collections received from the permanent exhibition building in Philadelphia. A second shed was subsequently added for the purposes of the National Museum, but only one of these now remains and is utilized by the Museum.

The large amount of work incident to the preparation of collections for the exhibitions at Cincinnati, Louisville, and New Orleans made it necessary to put up a special frame building, which was done at the expense of the exposition fund during the summer of 1884. It meas-

ured about 100 by 50 feet, and was located along B Street south, a short distance to the east of the Museum building. It was also made to serve for the temporary storage of the material brought back from those exhibitions. Some small additions were made and a loft constructed. It remained in use until 1887, when it was torn down and the materials of its construction were utilized elsewhere. During more or less of the period of its existence it furnished accommodations to the taxidermists, and osteologists, and to other preparators, including those of the Bureau of Ethnology. In it were also stored large quantities of specimens, especially geological and ethnological.

In 1887 two low sheds were built along the south side of and close to the Smithsonian building, one on each side of the south tower, and extending nearly the entire length of each façade. They were constructed largely of material from the building last above mentioned, and were both unsightly and dangerous in their proximity to the Smithsonian building. The west shed was at first cut up into seven workshops and storage compartments. The east shed was, for a time, given over to living animals, but when these were removed to the Zoological Park it was used for the storage of cases and supplies. Both sheds were more or less employed in the preparations for the World's Columbian Exposition at Chicago. Their removal was effected in 1898, under the provisions of an act of Congress giving \$2,500 for the purpose. The material derived from them was used partly in building a shed at the Ninth street annex, referred to below, and partly in the erection of the so-called south shed on the Mall directly south of the south tower of the Smithsonian building.

The National Zoological Park grew out of a small assemblage of living animals gathered at the National Museum. The first part of this collection was received from the West in 1887 and was installed in one end of the eastern of the two sheds along the south side of the Smithsonian. Additional specimens obtained in the early part of 1888 made it necessary to utilize the entire building for this purpose. Later in the year yards were constructed in the grounds south of the Smithsonian building for buffalo and deer, and several small buildings were also erected. During 1891 the living animals were transferred to the park, and the inclosures and buildings which they had occupied were all removed except the eastern shed and one small shed farther out on the grounds which was modified into a paint shop.

In the winter of 1889-90 the first of the frame buildings now constituting the Astrophysical Observatory was erected south of the eastern end of the Smithsonian building. It was subsequently slightly enlarged, and three other smaller structures were added in 1893 and 1898. The fence inclosing this cluster of buildings has recently been enlarged to afford some open-air space for experimental purposes, the extent of the area now covered being about 176 by 78 feet.

In 1898 a frame building of two stories, called the "south shed," was built on the grounds south of the south tower of the Smithsonian building, being separated from it by the roadway and a strip of lawn. It is about 53 feet long, 40 feet wide, and 23 feet high to the eaves. It contains the taxidermists' laboratories for mammals and various workshops.

The only structures now standing on the Mall near the Smithsonian and Museum buildings are the laboratory and stable building, the south shed, and the buildings of the Astrophysical Observatory. This clearing of the grounds, however, has only been rendered possible through the appropriation of funds by Congress for the renting of outside buildings, chiefly south of B street south, and not far distant from the Museum, as follows:

Louisiana avenue near Tenth street NW., from March 15, 1894, to June 30, 1895, a period of fifteenth months and sixteen days, at \$75 a month.

A part of the old Belt Line street-car stable, corner of B and Third streets SW., from July 1, 1895, to March 31, 1896, nine months, at \$75 a month.

No. 431 Ninth street SW., from April 1 to June 30, 1896, three months, at \$75 a month; from July 1, 1896, to date, at \$166.66 a month, the increase being due to extensive improvements in buildings.

No. 217 Seventh street SW., August, 1898, at \$90 a month; September 1, 1898, to June 30, 1899, ten months, at \$120 a month; July 1, 1899, to date, at \$90 a month.

No. 313 Tenth street SW., August 1, 1898, to June 30, 1901, thirty-five months, at \$50 a month; July 1, 1901, to date, at \$80 a month. The increased rental in this case was due to the erection of an addition to the original building.

Rear of No. 915 Virginia avenue SW., August 1, 1898, to June 30, 1899, eleven months, at \$50 a month; July 1, 1899, to date, at \$30 a month.

The total amounts paid annually for rental of the above buildings were, therefore, as follows:

1894.....	\$263. 71
1894-95.....	900. 00
1895-96.....	900. 00
1896-97.....	1, 000. 92
1897-98.....	1, 000. 92
1898-99.....	4, 389. 92
1899-1900.....	4, 039. 92
1900-1901.....	4, 039. 92
1901-2.....	4, 399. 92
1902-3.....	4, 399. 92
Total.....	27, 333. 15

The temporary buildings on the Mall and the rented buildings now used for the purposes of the Museum, together with the floor area occupied in each, are as follows:

	Square feet.
Natural history laboratory and stable, on Smithsonian grounds, bird taxidermists on second floor	615
South shed, on Smithsonian grounds south of Smithsonian building, mammal taxidermists, 1,060 square feet; tin shop, 340.....	1,400
Frame shed adjoining building of U. S. Fish Commission on Armory square, for storage, as follows: Anthropology, 5,562 square feet; biology, 1,318 square feet; geology, 193 square feet.....	7,073
Museum Annex at 431 Ninth street SW., consisting of one brick building and several frame sheds. Rented. Used for storage, as follows: Anthropology, 6,500 square feet; biology, 3,742 square feet; geology, 3,456 square feet; superintendence and miscellaneous, 7,431 square feet.....	21,129
Building 309-313 Tenth street SW. Rented. Utilized for storage and other purposes, as follows: Anthropology, 1,102 square feet; biology, 922 square feet; geology, 3,053 square feet; label office, 729 square feet; heating and power plant, 620 square feet.....	6,406
Building at 217 Seventh street SW. Rented. Utilized as a carpenter shop, 3,387 square feet, and anthropological workroom, 268 square feet.....	3,655
Building in rear of 915 Virginia avenue SW. Rented. Utilized as a paint and glass shop	2,925
Total area	43,203

NEW NATIONAL MUSEUM BUILDING.

HISTORY.

In his report for 1882 Secretary Baird discussed the inadequacy of the Museum building, then scarcely more than a year old, to house the rapidly increasing national collections or to provide for the Museum's own activities and those of the Geological Survey, the latter at that time being partly carried on under the same roof. It was proposed that a third building be erected on the southwest corner of the Smithsonian reservation for the geological and mineralogical divisions of the Museum and for the accommodation of the Geological Survey. Secretary Baird's remarks on this subject were as follows:

Large and capacious as is the new Museum building, it has proved already inadequate to the existing requirements of the National Museum. This building was designed primarily to accommodate the vast number of industrial and economical exhibits presented to the United States by foreign governments at the close of the Philadelphia Exposition of 1876. A special appropriation was made by Congress for their transfer to Washington, and the armory building in the square between Sixth and Seventh streets was assigned for their reception. It required nearly sixty large-sized freight cars to transport the mass.

Before the building was completed in 1881 and available for its purposes, almost equally enormous additions had been made to the collections of the various Government expeditions and of the Ethnological Bureau, which, together with many thousands of objects previously in charge of the Smithsonian Institution, but for which there was no room in the old building, constituted a much larger mass than was

originally estimated. It is well known that at the close of the Centennial Exposition a company was organized to take charge of a large portion of the collections exhibited on that occasion, and with these and such additional articles as might be obtained to establish what was known as the "Permanent Exhibition" in the main Centennial building, which covers nearly 18 acres. This organization, after struggling for existence for several years, finally became unable to continue the effort and the collections in its charge were speedily scattered. Many of these had been presented to the National Museum with the understanding that they were to be left with the Permanent Exhibition Company for a period of at least a few years. Others, however, including many of the most valuable series, were obtained for the National Museum through the efforts of Mr. Thomas Donaldson. All these collections were carefully packed under his charge and stored in a building erected by him adjacent to the Centennial building.

An appropriation was made by Congress to meet the cost of packing, shipping to Washington, and storing the collections in question. About twenty cars were required to transport them. They are now contained in a wooden building adjacent to the armory, there being absolutely no space for them in the National Museum.

In addition to this a cabinet of at least double the magnitude, made by the Institute of Mining Engineers and deposited with the Pennsylvania Art Museum of Philadelphia, has been offered to the Government simply on the condition of transfer to Washington and proper exhibition. This is an extremely important collection, illustrating the mining resources and metallurgy of the United States and foreign countries, and will constitute a most important addition to the means of instruction at the command of the Government. An appropriation will be asked, and it is hoped obtained, for the purpose of transferring the collection to Washington; but some measures must be taken for its ultimate display.

An even greater mass of additional material to be provided for will be found in the industrial collections of the United States census of 1880, and in the collections of the U. S. Geological Survey. The census collections embrace more particularly the building stones of the country, the ores (especially of the precious metals), the combustibles, such as coal, petroleum, etc., and the forest timber.

All these collections are of great magnitude, representing as nearly as possible a full series from all parts of the country. They are carefully labeled and recorded, and will be accompanied by full descriptions.

The building-stone collection is especially valuable, consisting, as it does, of many thousands of samples of marble, granite, sandstone, and other substances, for the most part dressed in 4-inch cubes, each of the faces showing a different surface and treatment.

It is not believed that any established quarry remains unrepresented in this series, while many extremely valuable deposits of ornamental and building stones are presented therein for the first time. Preparations are in progress for testing the strength, resistance to torsion and crushing force, and economical properties of all these samples. The collection is now so far advanced that when a public building is to be erected either by the States or the General Government it will be possible to show specimens of all the best building stones in the vicinity of the locality involved, and to present all the necessary data as to availability, durability, cost of production, etc. Much use has already been made of the collection by the commissioners of State capitals, county court-houses, etc., as well as by agents of the General Government.

The collection of ores made by the census agencies is also very extensive, that of iron being particularly large. Nearly every iron mine of any prominence in the United States has been visited and samples carefully selected by experts. These have been analyzed under the direction of Professor Pumpelly, and reports presented as to their chemical and metallurgical properties and economical value. All the

originals of this research are in charge of the Smithsonian Institution awaiting exhibition. The same may be said of similar researches in regard to the ores of all the other metals.

The work of the U. S. Geological Survey, also of enormous magnitude—begun under Mr. Clarence King and continued under Maj. J. W. Powell—has resulted in the accumulation of several tons of specimens of fossils, rocks, minerals, ores, and the like. Very few of these can at present be exhibited for want of the necessary space. The survey requires a large number of experts and assistants, and is at present very badly accommodated. Some twenty rooms in the new Museum building have been assigned as quarters for the Director of the Survey and his assistants.

This, however, causes great inconvenience to the other work of the Museum, and as the survey now occupies a large building in Washington, for which it pays considerable rental, and for want of quarters in Washington is obliged to scatter its stations over various parts of the United States, it is thought desirable to ask Congress for an appropriation to erect a second museum building corresponding in general character to the first, but on the opposite side of the square, along the line of Twelfth street.

This building it is proposed to devote almost entirely to the mineral department of the National Museum; and when completed to transfer to it everything of a geological and mineralogical nature, and also to prepare a portion of it especially for the accommodation of the Geological Survey, which is at present so inconveniently provided for. By way of economy it is proposed at first to construct what will represent the western side of the building, in which office rooms and chemical and other laboratories can be provided for.

It had been proposed to erect a separate building for the Geological Survey, disconnected from the National Museum; but there being no ground available for this purpose, it was thought expedient to ask for an appropriation to furnish the required quarters on the Smithsonian reservation, which is at present ample for the purpose.

On the 10th of April last the following bill was accordingly introduced into the House of Representatives and referred to the Committee on Public Buildings and Grounds. The subject is still before that committee, and it is impossible to state what will be its fate during the present session. I would recommend action on the part of the Board of Regents in this connection, since long before the edifice can be completed the need for it will become extremely urgent.

"A BILL (H. R. No. 5781) for the erection of a fireproof building on the south portion of the Smithsonian reservation, for the accommodation of the United States Geological Survey, and for other purposes.

"*Be it enacted, &c.*, That the sum of two hundred thousand dollars be, and hereby is, appropriated, out of any money in the Treasury not otherwise appropriated, for the erection of a fireproof building on the south portion of the Smithsonian reservation for the accommodation of the United States Geological Survey, and for other purposes: *Provided*, That the consent of the Regents of the Smithsonian Institution be first obtained thereto, and that the building be under their direction when completed: *And provided further*, That the building be erected by the Architect of the Capitol, in accordance with plans approved by the Director of the United States Geological Survey, the Secretary of the Smithsonian Institution, and the Architect of the Capitol acting as a board therefor."

At the annual meeting of the Board of Regents on January 17, 1883, Secretary Baird presented the report from which the above extract is taken, called attention to House bill 5781, introduced in April, 1882, and urged the necessity for speedy action in relation to

an additional building for the use of the Museum and the Geological Survey, whereupon the following resolution was adopted:

Resolved, That the Board of Regents of the Smithsonian Institution recommend to Congress to enlarge the National Museum, so as properly to exhibit the mineral, geological, and other collections already on hand and increasing each year, by the erection of a fireproof building on the southwest corner of the Smithsonian reservation, similar in style to the present National Museum; and they request an appropriation of \$300,000 therefor, to be expended under the direction of the Regents of the Institution.

It was also resolved—

That the chancellor, General Sherman, and the Secretary be, and they are hereby, authorized and empowered to act for and in the name of the Board of Regents in carrying into effect the provisions of any act of Congress which may be passed providing for the erection of an additional building for the National Museum.

Further strong reasons for the erection of an additional building were given in the report of Secretary Baird for 1883, in which he says:

No better illustration can be had of the increase in the collections of the National Museum than the fact that an additional building is urgently required for their proper accommodation, as explained in the last report (1882).

In 1875 the collections then in charge of the Smithsonian Institution were comfortably accommodated within the limits of the Smithsonian building, in rooms having an aggregate area of 30,000 square feet. They consisted principally of specimens of natural history and ethnology; confined almost entirely to North America, with the exception of objects of Polynesian manufacture, forming part of the Wilkes collection.

In 1875 an appropriation was made by Congress to enable the Smithsonian Institution and the Fish Commission to prepare an exhibit of objects illustrating the resources of the United States, as derived from the animal and mineral kingdoms, and, with the assistance of a special appropriation to the Indian Bureau, of a collection of North American anthropology. A large sum of money was expended in the preparation of this exhibit, which was forwarded to Philadelphia in 1876, and constituted a part of the Government display which attracted much attention.

At the close of the Philadelphia exhibition very large donations were made to the United States by foreign countries, including both the official commissioners and individual exhibitors. Many objects of much interest were contributed on the same occasion from American displays. These collections, filling some fifty freight cars, were brought to Washington and were stored for a time in the Army Building, assigned by Congress for their reception.

After several fruitless efforts, an appropriation of \$250,000 was obtained for the purpose of putting up an inexpensive edifice for the storage of these articles, and their transfer was begun in the autumn of 1881, but little more than two years ago.

Since then large numbers of collections of very great importance have come to hand, chief among them being the gatherings of the U. S. Geological Survey and of the Ethnological Bureau, made on a scale of unexampled magnitude and well befitting the operations of a nation like the United States. The many scientific explorations, made either separately by the Smithsonian Institution or conjointly with the United States Signal Service or other bureaus or bodies, the work of the Fish Commission, and the enormous aggregate of many smaller collections, have tended largely to increase the material to be provided for.

In addition to this, the exhibition by the United States at London of illustrations of its fisheries (the freight bulk of which amounted to not less than 24,000 cubic feet, and consisting, in very large part, of new objects and articles obtained at the expense of the appropriations of Congress for that purpose) must also be provided for; as also the very valuable and extensive collections in mineralogy, geology, and metallurgy made by the American Institute of Mining Engineers, and presented to the United States, but stored in Philadelphia awaiting an appropriation for its transfer.

It may be stated in brief, therefore, that, at the present time, the vast building, finished scarcely more than two years ago, is now filled to overflowing; while there is additional material enough on hand belonging to the Government to occupy fully half of a second building of the same size, and with a probability that the entire space will be required before the construction can be accomplished, even supposing that it is begun at the earliest possible time.

The Smithsonian Institution has always acted in hearty cooperation with the affiliated scientific branches of the Government even where no official relationship existed, this being notably the case in regard to the U. S. Geological Survey. This important Bureau, in the rapid increase of its work, has been greatly hampered by want of the necessary accommodations; and it was with much gratification that the Institution proffered a share of the new building to the Director, Major Powell, for the accommodation of his collections, and for the office and laboratory work. It was, however, unable to do as much as was desirable, owing to the inadequacy of quarters for the purpose.

Should an appropriation be made for the new building, for which the Board authorized application to Congress, it is intended to share it with the Geological Survey so that it may have all the facilities required for its important work.

It will be remembered that Congress in the act of 1846 set aside for the use of the Smithsonian Institution 20 acres in the southwest corner of the square bounded by Seventh and Twelfth streets and north and south B streets, the center of the Smithsonian building being exactly in the middle of the square. It was in the southeast quarter of this reservation that the new Museum building was erected, forming a very unsymmetrical annex to the original Smithsonian building. It is now proposed to take the southwest corner of the reservation for the new edifice, which, when completed, will be essentially of the general character of the present Museum building, and will restore the proper architectural balance.

Congress has now been asked to make an appropriation for one wing of this new building to be specially fitted for the use of the officers and laboratories of the National Museum and of the Geological Survey; and, if the amount can be obtained at the present session, occupation of the building can be assured within eighteen months from the commencement of operations. The vacating of the rooms now occupied by the Geological Survey will also furnish much-needed accommodation to the Museum; possibly enough until the remainder of the building can be provided for. The proposed wing, however, will be complete in itself, architecturally, and will not involve any addition for its proper harmonious effect.

The following estimate, based upon the recommendation to Congress above referred to, was submitted in 1883 for consideration with the appropriation bills for 1885, but failed to be reported to either House:

Construction, in a fireproof manner, of an additional museum building, to receive the collections and laboratories in chemistry, geology, mineralogy, metallurgy, taxidermy, etc.; and for the offices and laboratories of the U. S. Geological Survey, to be erected under the direction and supervision of the Regents of the Smithsonian Institution, on the southwest corner of the grounds of the Smithsonian Institution, \$200,000.

From 1882 until the present time the necessity for a new building has never ceased to be the subject of greater or less attention by the Regents and the Secretary. In 1885, after noting the previous steps taken, Professor Baird remarked:

The need is now much greater than before, as there is enough material in the way of valuable specimens of economical interest to fill a second building the size of the present one. This unexhibited surplus is now stored in several buildings, some in Washington and some elsewhere, and consists of important illustrations of the economical geology, metallurgy, and other resources of the United States. In addition to what has been on hand for some time, very large collections were presented to the Government at the New Orleans exhibition, which embraced a great deal of intrinsic value as well as of popular and scientific interest. It is earnestly to be hoped that this requirement will be met by Congress by the speedy appropriation of an amount suitable for the purpose.

In 1886 Secretary Baird stated that as special provision was desired for laboratories and offices, and to give suitable quarters to the U. S. Geological Survey and the Bureau of Ethnology, an estimate had been made of the sum of \$250,000 for the purpose of constructing one wing and pavilion of the new building, leaving the remainder to be constructed hereafter, should Congress so approve it, at a cost of, perhaps, an additional \$250,000. This estimate, submitted in 1886 for the sundry civil bill for 1888, varied but slightly in wording from the estimate of 1883. It received no consideration by Congress and was as follows:

For commencing the construction, in a fireproof manner, of an additional museum building to receive the collections and laboratories in chemistry, geology, mineralogy, metallurgy, taxidermy, etc., and for offices and laboratories of the U. S. Geological Survey, to be erected under the direction and supervision of the Regents of the Smithsonian Institution on the southwest section of the grounds of the Smithsonian Institution, \$250,000.

The following extract is from the Museum report of the same year, by Doctor Goode:

The National Museum is now approaching an important crisis in its history. Its future will depend upon the action of Congress in granting it an additional building, for without more room its growth can not but be in large degree arrested. From this time forward it will be impossible to develop the collections satisfactorily without additional space. The laboratories and workshops are already entirely inadequate for the storage of the unexhibited collections and the accommodation of the preparators and mechanics, and the exhibition halls do not afford suitable opportunity for the display of the materials already in order for public examination.

At the annual meeting of the Board of Regents on January 11, 1888, the first held after the appointment of the present Secretary of the Smithsonian Institution, Mr. Langley brought to the attention of the Regents the necessity of continuing the efforts toward securing an additional museum building, and spoke of the legislation previously proposed. The Board renewed its recommendation to Congress of January 17, 1883, and discussed the matter of providing quarters for

the Geological Survey in the new building, pursuant to the wording of House bill No. 5781, presented to Congress in 1881, and of the several estimates subsequently submitted. The chancellor stated as his opinion—

That it was desirable that new museum buildings should be erected in any case, but that since by act of Congress a certain part of the public grounds had been set apart and appropriated absolutely and exclusively to the Smithsonian Institution, he for one did not want to see anything else placed on these grounds.

He further said:

If the Smithsonian Institution is to grow, it will need them all, and whatever is put upon them should be under our exclusive control.

The following extract from the report of Secretary Langley for 1888 has reference to this subject:

Among other matters discussed at the last meeting of the Regents was the erection of a new Museum building. On this occasion the Regents tacitly reaffirmed their resolution of 1883, recommending to Congress the enlargement of the National Museum by the erection of a fireproof building on the southwest corner of the Smithsonian reservation, similar in style to the present National Museum; but on viewing the sketch plans, which had been prepared subsequently to the resolution, so as to include offices for the Geological Survey, they added an expression of their opinion that the new building should be planned exclusively for Museum purposes.

It was not at first intended to take action in this matter during the present year, but the overcrowded condition of the building, on account of which not only the current work but the proper development of the collections is greatly impeded, seemed to render immediate action necessary. A still more urgent need appeared to be the unsatisfactory sanitary condition of the new Museum building. A committee, consisting of Dr. J. H. Kidder, chairman, Dr. James M. Flint, U. S. Navy, and Mr. J. E. Watkins, was appointed on April 14, to make a careful study of the water supply, ventilation, and drainage, and in May submitted a preliminary report, from which it appeared that an alarming amount of sickness and mortality has been manifest among the employes since 1881—a mortality which can not be attributed to the location of the building, which has sometimes been pronounced unsanitary, since there has been no corresponding percentage of ill health in the old Smithsonian building adjoining. The number of days lost by employes on account of sickness in 1886 was 796; in 1887, 875; and in 1888, up to May 10, 213, by far the largest part of this loss of time being attributed on the books of the Museum to miasmatic diseases. The committee states that there is no reasonable doubt that some, if not all, of the ten deaths since 1881 were hastened or induced by the unwholesome condition of this building. The committee suggested repairs and modifications of considerable extent, including the construction of continuous cellars under each of the four sides of the building, which, in addition to the other necessary expenses, would cost in the neighborhood of \$40,000. This state of affairs seemed to demand decided action, and it being absolutely impossible to make any changes in the present building without entirely vacating a portion of it for a considerable period of time, the exigency for more accommodation seemed a great deal more urgent than had been at first supposed.

While it became evident, on study of the question, that for the ultimate needs of the Museum, a building of but one story, occupying the same area as the present Museum, would be insufficient, the question of immediate action was unexpectedly brought up in May by one of the senior Regents, a member of the Senate, who, when

visiting the Museum with some friends, noticed its crowded and unsatisfactory condition. Having learned from me of the mortality and sickness of the employees, he inquired as to the feasibility of erecting a new building, and offered to use his influence to procure an appropriation, if I could obtain for him a set of sketch plans within a week, time being, as he stated, a very essential condition. After consulting with the chairman of your executive committee, I had no hesitation in accepting such an offer, but a difficulty arose from the fact that the sketch plans which had been laid before the Regents in 1882 were in part for purposes which the Regents had at their last meeting disapproved, and that hence they could not be used. By great diligence, however, plans for a building to be devoted exclusively to Museum purposes were prepared within the time mentioned. These were based upon an extensive accumulation of notes and drawings, embodying the record of the best recent work of museum construction in this country and in Europe, and they were for a building, as far as was consistent with these improvements, like the existing Museum. The report submitted by Senator Morrill, to accompany Senate bill 3134, contains the correspondence on which action was taken, and I have discussed the acts therein presented elsewhere under the proper heads.

The following bill was introduced by Senator Morrill on June 12, was passed by the Senate on June 20, and at the end of the fiscal year was in the hands of the House Committee on Public Buildings and Grounds:

"A BILL for the erection of an additional fireproof building for the use of the National Museum.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of five hundred thousand dollars is hereby appropriated, out of any money in the Treasury not otherwise appropriated, or so much thereof as may be necessary, for the erection of a fireproof building for the use of the National Museum, to cover three hundred feet square, and to consist of two stories and basement, to be erected under the direction of the Regents of the Smithsonian Institution, in accordance with the plans now on file with the Committee on Public Buildings and Grounds of the Senate, on the southwestern portion of the grounds of the Smithsonian Institution. Said building to be placed west of the Smithsonian Institution, leaving a roadway between it and the latter of not less than forty feet, with the north front on a line with the south face of the building of the Agricultural Department and of the Smithsonian Institution; and all expenditures for the purpose herein mentioned shall be audited by the proper officers of the Treasury Department."

The building, as proposed, covers the same area as the present Museum, and is of the same general style, so far as is consistent with the introduction of a second story, thus affording nearly three times as much accommodation under the same area of roof as the building now in use. The arrangement of the interior of the proposed new structure is, however, considerably modified, as the result of the experience of seven years' occupation of the present building. The eighteen exhibition halls on the two main floors are completely isolated from each other, and are capable of subdivision into smaller halls. The lighting will be equally as good as in the present building, the ventilation will be much better, and in other important respects the sanitary arrangements will be far more satisfactory.

A basement story is absolutely necessary, not only with a view to promoting the comfort and health of visitors and employees, as well as for securing greater dryness and better preservation of the specimens, but also for the purpose of providing large apartments for storerooms and workshops. These proposed improvements in arrangement will not, however, interfere with the possibility of constructing a building which shall conform in the essential points of exterior proportion with the main features of the present building.

The present building contains about 80,000 square feet of floor space available for exhibition and storage. The building proposed will contain about 220,000 square feet. The amount of room for offices and laboratories would be about the same in each. The net area in the new building available for exhibition, storage, and office rooms, as estimated, would be between five and six acres.

For the construction of the present Museum building an appropriation of \$250,000 was made. This sum was supplemented by the following special appropriations: \$25,000 for steam-heating apparatus, \$26,000 for marble floors, \$12,500 for water and gas fixtures and electrical apparatus, and \$1,900 for special sewer connections. The total amount expended on this building was therefore \$315,400, and it is generally admitted that the cost of its construction was considerably less than that of any other similar building in existence; in fact, perhaps too cheap to secure the truest economy.

The proposed structure can be erected at a proportionately smaller cost. I have obtained from responsible bidders, who are willing to give bonds for the completion of the work in accordance with the bids which they have submitted, estimates for the erection of the building complete, with steam-heating apparatus and all other essential appliances, excepting the electrical equipment, amounting in the aggregate to \$473,000. These bids, upon which the estimates of cost have been made, were not competitive, and it is possible that something may be saved through competition. It is, however, necessary to provide also for the architect's superintendence, and for the removal and reconstruction of the Smithsonian stable, which now occupies the site. I therefore think it advisable to make request for the sum of \$500,000, in order that these additional items and other contingencies may be covered.

The plans, though drawn in the limited time imposed, represent the results of an exhaustive study—which has extended over several years—of plans of the best modern museum buildings in Europe and America, nearly all of which have been personally inspected by officers of the Smithsonian Institution.

Senate bill No. 3134, above quoted, when presented to the Senate on June 12, 1888, was accompanied by a favorable report from the Senate Committee on Public Buildings and Grounds (No. 1539), and contained two letters from Secretary Langley, dated June 2 and 8, 1888. The former referred mainly to the plans for the proposed building, the latter to the collections and needs of the Museum. On June 21, an effort was made to have this bill attached to the sundry civil bill, an amendment to that effect being proposed by Senator Morrill, but no progress was gained by this action, and the bill went over to the next session.

On January 17, 1889, Senator Morrill again submitted the measure as an amendment to the sundry civil bill for 1890, and it was referred to the Committee on Appropriations, but no action was taken. In his report for the same year Secretary Langley shows the increased necessity for additional space, in that Congress at its previous session had granted the Armory building to the Fish Commission as its headquarters, requiring the Museum to remove therefrom all but a few of its preparator's workrooms.

On December 10, 1888, and December 19, 1889, bills were introduced in both houses of Congress for the erection of a fireproof building for the U. S. Geological Survey independently of the National

Museum, on the south side of the Mall between the Museum building and that of the Army Medical Museum, the amount requested for the purpose varying in the several bills and amendments thereto from \$300,000 to \$800,000. Both of these measures failed to pass. The report of the House Committee on Public Buildings and Grounds, submitted February 16, 1889, contains a letter from the Director of the Survey, from which the following extracts, interesting in this connection, are taken:

In addition to the rooms in the rented [Hooe] building, through the courtesy of the Secretary of the Smithsonian Institution the Survey is permitted to use twenty-two rooms in the National Museum, and these are all crowded in such manner that work is seriously obstructed. The rooms in the National Museum were temporarily given to the Survey at a time when there was no pressing necessity for their use by the officers of the Museum; but at the present time the entire Museum is so crowded that the Secretary of the Smithsonian and the Director of the Museum are anxious to have these rooms surrendered for their use. * * *

The building planned does not provide for museum space. The statutes now provide that the collections of the Geological Survey, when no longer needed for investigations in progress, shall be deposited in the National Museum. The plan contemplated in the bill before your committee provides that the building for the Geological Survey shall be near to the National Museum—between that building and the Army Medical Museum building. Such an arrangement of buildings will be highly advantageous to the Survey, as the offices of the Survey would be adjacent to the National Museum, and the materials stored in the Museum building would be accessible for reference and comparison, as constantly needed.

In his annual report for 1890, Assistant Secretary George Brown Goode, in charge of the Museum, made the following statements regarding the necessity for a new building:

The necessity for additional room is constantly increasing, and several of the collections, to wit, transportation and engineering, fishes, reptiles, birds' eggs, mollusks, insects, marine invertebrates, vertebrate and invertebrate fossils, fossil and recent plants, are in some instances wholly unprovided for, and in others only in a very inadequate degree.

In the main hall of the Smithsonian building is still exhibited the collection of birds. A few cases containing birds' eggs and shells have recently been arranged along the center of this hall.

Eleven of the departments in the National Museum have no space assigned to them in the Museum building, solely on account of its crowded condition. The collection of prehistoric anthropological objects remains installed on the second floor of the Smithsonian building. The collections of the remaining ten departments can not be exhibited or even properly arranged and classified without more room. These collections are at present stored in the attics and basements of the Smithsonian and Armory buildings, and are inaccessible for study and for the other purposes for which they were obtained. The specimens comprising these collections are not simply objects of natural history, possessing an abstract interest to the student, but represent the application of natural objects to the industries, and, as such, are of great importance. There are several collections of ores, minerals, building stones, and of objects representing various arts and industries, which are of very great value, since they furnish to the American manufacturer and designer information of inestimable importance.

The increase in the national collections during the last eight years may perhaps be best described by the statement that in 1882 the total number of specimens recorded in the Museum was about 183,000; while in 1890 the records indicated the possession of nearly 3,000,000 specimens. It is proper to say in this connection that the actual increase was not so great as shown by the records, since during this period a large amount of material previously received had been brought under control and placed on the books of the Museum. It should also be borne in mind that the present Museum building was planned with reference to the reception of the material in its custody at the time of its construction.

During the Fifty-first Congress the question of a new building was frequently under discussion, but without result. On February 19, 1890, Senator Morrill, from the Committee on Public Buildings and Grounds, reported Senate bill No. 2740, which provided:

That for an additional fireproof building for the use of the National Museum, 300 feet square, with two stories and a basement, to be erected under the direction of the Architect of the Capitol, with the approval of the Regents of the Smithsonian Institution, in accordance with plans now on file with the Committee on Public Buildings and Grounds, on the southwestern portion of the grounds of the Smithsonian Institution, there shall be appropriated, out of any moneys in the Treasury not otherwise appropriated, the sum of \$500,000; said building to be placed west of the Smithsonian Institution, leaving a roadway between it and the latter of not less than 50 feet, with its north front on a line with the south face of the Agricultural Department and of the Smithsonian Institution, and constructed as far as practicable, after proper advertisement, by contract or contracts awarded to the lowest responsible bidder, and all expenditures for the purposes herein mentioned shall be audited by the proper officers of the Treasury Department.

On April, 9, 1890, the same bill was submitted to the House and referred to the Committee on Public Buildings and Grounds. These bills were again brought up in the second session of the same Congress, in the House on January 9, 1891 (where it was committed to the Committee of the Whole), and in the Senate on February 9, 1891, as an amendment to the sundry civil bill for 1892. The House bill, differing somewhat in wording from the Senate bill, was as follows:

That for an additional fireproof building for the use of the National Museum, 300 feet square, with two stories and a basement, to be erected by the Supervising Architect of the Treasury, under the direction of the Regents of the Smithsonian Institution, in general accordance with plans now on file with the Committee on Public Buildings and Grounds, on the southwestern portion of the grounds of the Smithsonian Institution, there shall be appropriated, out of any moneys in the Treasury not otherwise appropriated, the sum of \$500,000; said building to be placed west of the Smithsonian Institution, with its north front on a line with the north front of the present Museum building, and constructed as far as practicable, after proper advertisement, by contract or contracts awarded to the lowest responsible bidder, and all expenditures for the purposes herein mentioned shall be audited by the proper officers of the Treasury Department.

Letters in support of the measure were transmitted to Congress by Secretary Langley, and some arguments were presented on the floor.

The report to the Senate Committee on Public Buildings and Grounds by Secretary Langley, dated January 21, 1890, was mainly as follows:

I send you herewith a set of sketch plans intended to show, in a general way, the extent and character of a building such as would seem to be necessary for the accommodation of the Museum collections in the present and immediate future, and respectfully request for them your attention and a recommendation to Congress of the necessary means for such a building.

These plans and sketches are provisional, but although not presented in detail they represent the results of studies, extending over many years, of the plans of the best modern museum buildings in Europe and America, nearly all of which have been inspected by officers of the Smithsonian Institution.

The proposed building covers the same area as that finished in 1881. It is intended to consist of two stories and a basement, except in the central portion, which consists of one lofty hall open from the main floor to the roof, the height of which will be 90 feet, galleries being placed on the level of the second floor in other parts of the building. Its interior arrangements are, as you will see, different from those in the actual Museum, all the changes having been planned in the light of the experience of nine years' occupation of the present building. It will afford between two and three times as much available space for exhibition and storage under the same area of roof. The fifteen exhibition halls are completely isolated from each other, and may readily be subdivided, when necessary, into smaller rooms. The light will be as good as in the old building, and the ventilation perhaps still better. The sanitary arrangements have been carefully considered.

The necessity for a basement is especially great. In this place has been provided for many storage rooms and workshops. The existence of a basement will promote the comfort and health of visitors and employees, and by increasing the dryness of the air in the exhibition halls will secure the better preservation of the collections. These proposed changes in the internal arrangements will not interfere with conformity with the other points of the present Museum building in the essential features of exterior proportion. The total capacity of this present building in available floor space is about 100,000 square feet; that of the new building somewhat exceeds 200,000. The present Museum building contains about 80,000 feet of floor space available for exhibition. That proposed will contain about 103,300 square feet for exhibition. The space devoted to offices and laboratories would not be much more, but the area available for exhibition halls, storage rooms, and workshops far greater. The appropriation for the construction of the present building was \$250,000.

The estimates of cost on this building vary greatly with regard to details of construction on which I do not here enter further than to say that the whole should be absolutely fireproof throughout, and in view of the further great variation of the cost of building materials within the past two years, I am not prepared to state the sum which would be necessary for its completion. It is certain, however, that \$500,000, if not sufficient to complete it, would be all that would be required to be expended during the present year, and I would respectfully represent the desirability of an appropriation of this amount for the purpose in question.

Your attention is directed to certain facts in regard to the character of the materials for the accommodation of which this building is desired. The collections of the Smithsonian Institution and of the Government are especially rich in collections of natural history, which may be grouped in three general classes: The zoological collections, the botanical collections, and the geological collections, including not only all the geological and mineralogical material, but the greater portion of that belonging to paleontology, the study of fossil animals and plants forming an essential part of modern geological work.

Besides the natural history collections, there are equally important anthropological collections which illustrate the history of mankind at all periods and in every land, and which serve to explain the development of all human arts and industries. In everything that relates to the primitive inhabitants of North America, Eskimo as well as Indian, these collections are by far the richest in the world, and with the necessary amount of exhibition space the material on hand will be arranged in a manner which will produce the most impressive and magnificent effect, the educational importance of which can not be overestimated. Again there are collections of considerable extent which illustrate the processes and products of the various arts and industries, as well as what are termed the historical collections, which are of especial interest to a very large number of the visitors to the Museum on account of the associations of the objects exhibited with the personal history of representative men or with important events in the history of America.

The collections illustrating the arts and the art industries are relatively small, and although in themselves of great interest and value, not to be compared in importance with those in natural history and ethnology.

In a letter addressed on June 7, 1888, to the Hon. Justin S. Morrill, and which will be found in a report of June 12 of the same year from the Senate Committee on Public Buildings and Grounds, I made a statement of the rapidity of the recent growth of the Museum, mentioning that in the five years from 1882 to 1887 the number of specimens in the collection have multiplied no less than sixteen times, and endeavored to give an idea, though perhaps an inadequate one, of the extent to which the pressure for want of space was felt. The evil has grown rapidly worse, and, as I have had occasion to mention, it has been felt in the last year in a partial arrest of the growth of the collections, which emphasizes the demand for more room. The present Museum building is not large enough even for the natural history collections alone, a number of which are without any exhibition space whatever. The proposed building will afford accommodations for the ethnological and technological material already on hand and for a large part of the natural history material also. The collections are still increasing, and the number of specimens, as estimated, is now not far from 3,000,000.

Unless more space is soon provided the development of the Government collections will of necessity be almost completely arrested.

So long as there was room for storage, collections not immediately required could be received and packed away for future use. This can not longer be done.

The Armory building, since 1877 assigned to the Museum for storage and workshops, is now entirely occupied by the U. S. Fish Commission, with the exception of four rooms, and by some of the Museum taxidermists, who are now working in very contracted space, and whom it is impossible to accommodate elsewhere.

Increased space in the exhibition halls is needed, the educational value of the collections being seriously diminished by the present crowded system of installation. Still more necessary, however, is room for storage, for rearranging the great reserve collections, for eliminating duplicate material for distribution to college and school museums, and for the use of the taxidermists and preparators engaged in preparing objects for exhibition. Space is also required for the proper handling of the costly outfit of the museum cases and appliances for installation, of which there is always a considerable amount temporarily out of use or in process of construction.

In summarizing what has just been said, it may be stated in general terms that the amount of space already required for exhibition purposes alone, being 207,500 feet as against 100,675 now occupied, and this being exclusive of the 108,900 square feet needed for other objects, the accumulations have now reached such a point of congestion that the actual space needs to be doubled, even independently of future

increase; and I beg to repeat that, unless more space is provided, the development of the Government collection, which is already partly arrested, will be almost completely stopped.

The bill was passed by the Senate as a separate measure on April 5, 1890, and as an amendment to the sundry civil bill for 1891 on July 19. In the House no action was secured, though the bill was favorably reported by the Committee on Public Buildings and Grounds.

The question of placing a basement story under the existing Museum building, which had been under consideration at this time and was referred to the Architect of the Capitol, was reported upon to the House, under date of March 3, 1890, as follows:

ARCHITECT'S OFFICE, UNITED STATES CAPITOL,
Washington, D. C., February 28, 1890.

SIR: In compliance with the requirements of the act providing for the sundry civil expenses of the Government, approved March 2, 1889, I have examined the National Museum, and have estimated the cost of constructing the basement story under that building.

It is thought that the only portion of the basement available for workshops and suitable for storage would be a cellar running around the outer walls of the building and extending inwards 30 feet, so that the rooms thus obtained may have light and air.

These rooms should be roofed with brick arches supported by iron beams. Provision is made in the accompanying estimate to floor with tiles the entire rooms under which these basements come, in part, as the present wooden floors of these rooms are now in bad condition and will soon be unfit for use.

ESTIMATE.

Excavating 6,220 yards of earth, at \$1	\$6,220
Underpinning front walls, 672 perches, at \$7	4,704
Stone masonry, inner walls, 1,248 perches, at \$6	7,488
Fireproof flooring (including columns), 1,866 yards, at \$5.50	10,263
Marble tiling, 30,400 superficial feet, at 75 cents	22,800
Fifty-six windows, at \$25	1,200
Removing and replacing pipes and sewers	3,000
Removing old floors	300
Concrete floors in cellars, 1,866 yards, at 90 cents	1,680
Total	57,675

I will say that by reason of the sewer, steam, and gas pipes running under the present floors the work of constructing these basement rooms, though practicable, will be extremely difficult.

I beg to say that I am of the opinion that a site for a storehouse and for workshops required may be purchased in the neighborhood of the Museum and a fire-proof building erected thereon with a capacity as great as these proposed basement rooms for a sum less than will be necessary to construct this basement.

Very respectfully,

EDWARD CLARK,
Architect United States Capitol.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

On January 28, 1891, in view of the possibility of the passage by Congress of a bill for a new building, the Regents—

Resolved, That the executive committee of the Board of Regents, or a majority thereof, and the Secretary be, and they are hereby, authorized and empowered to act for and in the name of the Board of Regents in carrying into effect the provisions of any act of Congress that may be passed providing for the erection of a new building for the United States National Museum.

In the Fifty-second Congress a bill identical with that submitted at the beginning of the previous Congress passed the Senate on April 14, 1892, but in the House it went no further than the Committee on Public Buildings and Grounds. In the Fifty-third Congress the same measure was again introduced, but failed of action.

In all the reports of the Secretary from 1892 down, attention was called to this ever-pressing subject. The exhibition space in both buildings was overfilled. Small specimens could be crowded in here and there, but extensive changes meant that old collections must be sent to storage for the benefit of something more important or of a better class of preparations. Extra storerooms and workrooms were imperative, but they could only be provided by renting outside quarters, with the full understanding that such structures were unsafe, and that collections to the value of hundreds of thousands of dollars might any day be destroyed through the merest accident. Year after year the extent and value of the material thus unsafely housed has been rapidly increasing, and the conditions prevailing have also influenced disadvantageously many owners of valuable and rare specimens, the donation or loan of which could easily have been effected were there a safe place for their installation. It is known that the Museum has been deprived of many large and important accessions from this cause alone.

These circumstances have been explained time and again, but while the arguments presented have excited much interest and have secured the influence of strong and devoted friends, they have never, until within the past two years, obtained the recognition they merit.

The building of galleries in the Museum building, begun in 1897, has afforded slight relief, but the total extent of these additions has increased but little the former area of the two buildings, and in no way lessened the need of a new one.

In the Fifty-fourth Congress Senator Morrill made his final effort toward securing the appropriation so much desired by introducing in the Senate, on December 10, 1895, bill No. 698, which differed but slightly in wording from former measures, except that the cost was reduced from \$500,000 to \$250,000. It was as follows:

That for an additional fireproof building for the use of the National Museum, 300 feet square, with two stories and a basement, to be erected under the direction of the

Architect of the Capitol, with the approval of the Regents of the Smithsonian Institution, in harmony with the present National Museum building, on the southwestern portion of the grounds of the Smithsonian Institution, there shall be appropriated, out of any moneys in the Treasury not otherwise appropriated, the sum of \$250,000; said building to be placed west of the Smithsonian Institution, leaving a roadway between it and the latter of not less than 50 feet, with its north front on a line with the south face of the Agricultural Department and of the Smithsonian Institution, and constructed, as far as practicable, after proper advertisement, by contract or contracts approved by the Secretary of the Treasury and awarded to the lowest responsible bidder; and all expenditures for the purpose herein mentioned shall be audited by the proper officers of the Treasury Department.

This bill was referred to the Committee on Public Buildings and Grounds, but on February 27 following Senator Morrill reported an amendment, which consisted in substituting for the "Architect of the Capitol" the name of Bernard R. Green to have direction of the construction. It was submitted by the committee on March 23, 1896, with a report (No. 540), consisting of material supplied by Secretary Langley and Assistant Secretary Goode. The following, by Mr. Langley, is extracted from his report for 1895:

In my last annual statement I pointed out three conditions which are operating to seriously retard the growth of the National Museum: First, the lack of space for the installation of objects which should be placed on exhibition; second, the unsymmetrical growth of the collection; and, third, the fact that the storage of collections in the wooden sheds south of the Smithsonian building, as well as in the basement of the building itself, is most undesirable and dangerous. The sum of \$900, allowed for 1896, will be necessarily expended in the rental of shop and storage room in place of the "Armory building." The actually dangerous wooden sheds must therefore remain occupied until a sum of money is provided which will enable me to discontinue their use altogether by renting other quarters removed entirely from proximity to the Smithsonian building.

The problem of even providing shelter of any kind for the vast amount of material daily received from persons interested in the growth and work of the Museum still remains unsolved. The Institution is placed in an embarrassing position. It has been designated by law as the only depository of collections offered to or made under the auspices of the Government, and can not, under the law, refuse to receive them. The fact remains, however, that when accepted there is no suitable place in which to store them, and no space in the Museum building to exhibit such of the objects as should properly be shown to the public. As I have already pointed out, there is probably no museum in the world in which so small a proportion of the objects worthy of exhibition is visible to the public, or in which the objects exhibited are crowded together so closely. It is now more true than ever that if another museum building as large as the present one were provided it could be at once filled with specimens already on hand.

Following are some of the more important parts of Mr. Goode's statement:

The Smithsonian Institution is the custodian of the National Museum, which is the only lawful place of deposit of "all objects of art and of foreign and curious research, and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States." The nucleus of the collections consists of the specimens brought home by the Wilkes and other exploring expedi-

tions, but for many years the Museum was supported entirely at the expense of the Smithsonian fund, and a considerable portion of the collections is the property of the Institution.

Professor Huxley defines a museum as "a consultative library of objects." The National Museum is such a consultative library, and it is a great deal more. It is an agency for the instruction of the people of the whole country, and it keeps in mind the needs of persons whose lives are not occupied in the study of science, as well as those of the professional investigator and teacher.

Its benefits are extended without cost or reserve to hundreds of thousands of visitors from all parts of the United States who pass through its doors each year.

It is also accessory to public education through the distribution of the duplicate specimens in the Museum, which are made up into sets, accurately named, and given to public institutions in all parts of the country.

The history of the Museum is divided into three periods: First, that from the foundation of the Smithsonian Institution to 1857, during which time specimens were collected purely and solely to serve as materials for research, no special effort having been made to publicly exhibit them or to utilize them except as a foundation for scientific description and theory. Second, the period from 1857, when the Institution assumed the custody of the "National Cabinet of Curiosities," to 1876. During this period the Museum became a place of deposit for scientific material which had already been studied, this material, so far as practicable, being exhibited to the public, and thus made to serve an educational purpose. Third, the present period, beginning in the year 1876, during which the Museum has entered upon a career of active work in gathering collections and exhibiting them on account of their educational value.

During the first period the main object of the Museum was scientific research; in the second the establishment became a museum of record as well as of research; while in the third period there is growing up also the idea of public education.

The three ideas, record, research, and education, cooperative and mutually helpful as they are, are essential to the development of every great museum. The National Museum endeavors to promote them all.

It is a museum of record, in which are preserved the material foundations of an enormous amount of scientific knowledge, the types of numerous past investigations. This is especially the case with those materials that have served as a foundation for the reports upon the resources of the United States.

It is a museum of research, which aims to make its contents serve in the highest degree as a stimulus to inquiry and a foundation for scientific investigation. Research is necessary in order to identify and group the objects in the most philosophical and instructive relations, and its officers are therefore selected for their ability as investigators as well as their trustworthiness as custodians.

It is an educational museum, through its policy of illustrating by specimens every kind of natural object and every manifestation of human thought and activity, of displaying descriptive labels adapted to the popular mind, and of distributing its publications and its named series of duplicates.

The collections are installed in part in the Smithsonian building and in part in the large building adjacent, covering 2½ acres of ground, which was erected in 1881 to afford temporary accommodations for the overflow until such time as an adequate new building could be constructed.

The intrinsic value of such collections as these can not well be expressed in figures. There are single specimens worth hundreds, others worth thousands, of dollars, and still others which are unique and priceless. Many series of specimens which owe their value to their completeness and to the labor which has been expended on them can not be replaced at any price. The collections at a forced sale would realize

more than has been expended on them, and a fair appraisal of their value would amount to several millions of dollars.

In the direct purchase of specimens but little money has been spent, less, perhaps, in fifty years than either France, England, Germany, or Austria expends in a single year on similar objects. The entire Museum is the outgrowth of Government expeditions and expositions, and of the gifts prompted by the generosity of the American people.

If there were more space it would be possible to devote a special hall to the collections illustrating the life of the races of the Far North—the Eskimos and their kin. A large hall might be filled with the wonderful groups of models of the races of mankind, and particularly of the different tribes of the North American Indians, clothed in their characteristic costumes and engaged in the arts and occupations peculiar to each. These groups are recognized in Europe as having no equal, and are now temporarily placed in the lecture room and in various out-of-the-way corners where their effect and usefulness are largely lost. No other museum in the world has such rich material in this field, but at present only a small number of exhibition cases can be devoted to them and the remainder of the material is stowed away in drawers and packing boxes.

The magnificent mounted groups of the larger animals of America, unsurpassed by anything of the kind in the world, are now so crowded together in the midst of other collections that they are scarcely visible, and some of them are packed away. The great fossil vertebrate animals of North America, of which there is a magnificent series. A considerable portion of this collection is now stored in the basement of the museum at Yale College for lack of room to receive it here, although it is much needed by the geologists of the Geological Survey for purposes of study.

Another hall is needed which might well be devoted to economic geology, illustrating the wonderful material wealth of our country and its utilization; and still another is needed to illustrate the material resources of the country, classified by States. With the present accommodations the materials and ores of each State are confined to one or two small cases. A hall of proper extent, arranged upon this geographical plan, would be one of the most impressive displays of the kind to be seen anywhere in the world.

The building devoted especially to the Museum was erected after the Centennial Exhibition in Philadelphia as a temporary accommodation for the collections given to the United States by the foreign governments and private exhibitors represented on that occasion. It is the cheapest public building of a permanent character ever erected, having cost only \$2.25 a square foot of floor space available for exhibition. The museum buildings in Central Park, New York, have cost from \$30 to \$40 a square foot.

The building in Washington has served a good purpose, but is deficient in one of the most important particulars; it has no cellars whatever, and very little provision for workshops and laboratories. In consequence of this it has been necessary to use all kinds of devices for storing material which can not be exhibited in the exhibition halls in the bases under the exhibition cases, in small recesses, so ingeniously contrived that their presence is not suspected. It has been necessary to do this, but the result has been to still further increase the crowded condition.

Another disagreeable result is that much noisy work has to be done in the Museum halls in spaces shut off from the public by screens, and that when preparations for exhibitions or unpacking are going on, not only are a portion of the collections closed to the public, but there is a constant and unpleasant noise of hammers.

A temporary relief was secured some years ago by placing the great herbarium, one of the most important collections of American plants in the world, in the custody of the Agricultural Department; but last year the Secretary of Agriculture

found himself unable to longer give these collections house room; and since the building in which they were kept is not fireproof, and the destruction of the collection would be an incalculable loss to science, there was nothing to do but to receive this, and up to the present time a considerable portion of the collection still remains in danger of destruction by fire, at the Department of Agriculture. There is also a large amount of other material which ought to be arranged for public exhibition in a fireproof building which is now in the inflammable wooden structure adjoining the Department of Agriculture, and which the Secretary is desirous of transferring, if accommodation can be found for it.

All the collections of the Geological Survey are stored in this building, and a considerable number of the scientific experts employed by the Survey have office room and accommodations to enable them to study in the Museum building. These accommodations have become absolutely inadequate, and there is no more room to receive the collections which the Director of the Survey deems absolutely necessary to have here in Washington in connection with his investigations of the material wealth of the country.

The crowded condition of the exhibition halls has been dwelt upon, but that of the storage rooms is still more congested. In the basement of the old Smithsonian building, in its towers, and in various small rooms about the new building, there is a space equivalent to perhaps 200,000 cubic feet, crowded to its utmost capacity with boxed material. This material is all carefully recorded, and the location and contents of every box is definitely fixed, so that when necessary any desired object can be referred to; but satisfactory use of the collections is impossible. In one basement room, for instance, are crowded 50,000 skins of birds, and 50,000 in an adjacent gallery, altogether twelve times as many as are shown in the exhibition hall. So closely are they crowded that it is impossible even to rearrange them, and their study is attended with great difficulty. It is desired to separate from among these the duplicates for distribution to the colleges and schools throughout the country, and an attempt has been made to accomplish this, but it has been found practically impossible.

The great collection of alcoholic fishes (the result in part of the explorations of the Fish Commission), the most extensive in America, and one of the most extensive in the world, is stored in two basement rooms and only accessible with the greatest difficulty. Furthermore, the crowding of such a mass of alcoholic material in a small space is very dangerous, and in case of fire would lead to disastrous results. Properly equipped museums, like the British Museum in London, have a special fireproof building for collections of this kind, separate from other buildings, and provided with special devices for the prevention of fire.

In addition to the storage within the fireproof buildings there are a number of sheds whose capacity is roughly estimated at 170,000 cubic feet, which are packed with valuable material, and in which most of the workshops are placed. Two of these are immediately south of the Smithsonian building, another at the southeast corner of the Museum building, two others to the southwest of the old Armory building, and another, temporarily hired, halfway between the Museum and the Capitol. Until 1888 two floors of the old Armory building were used for the storage of Museum material. It then became necessary to give up one floor to accommodate the increasing necessities of the Fish Commission, and in 1894 to give it up entirely to the Commission. At that time an appropriation was made to rent storage rooms in the city. Suitable storage rooms can not be rented; we have had to move twice and are now being forced to a third move. These moves are destructive and expensive.

The two sheds adjoining the Armory building are getting old and some of the timbers are rotting away. They can not be repaired because there is no place to put the material they contain while the work is being done, and they are so crowded that temporary readjustments for this purpose are not possible.

All of the wooden storage sheds are in constant danger from destruction by fire. This is a matter especially serious in connection with two long sheds near the Smithsonian building. In his report to the Regents, presented to Congress in 1894, Secretary Langley made an earnest appeal for relief in the following words:

"I have the assurance of experts that a fire communicated to these rooms would sweep through the entire length of the building, and although the building itself is fireproof as against any ordinary danger, it may well be doubted whether any of the collections therein exhibited can be regarded as safe if the rooms immediately below should be exposed to so peculiarly severe a conflagration as would be caused by the ignition of these large quantities of inflammable material. Besides this, these wooden sheds, which (as I have already intimated) are used not only for storerooms, but for workshops, for the preservation of specimens, and also as sheds for the carpenters, are likewise liable to cause serious losses should a fire be kindled in any of them, and all of these, I repeat, are immediately under the windows of the Smithsonian building.

"In a report recently submitted by one of the inspectors of the Association of Fire Underwriters, in response to a request from me for a statement as to what insurance rates would be fixed upon the sheds in question, the Smithsonian building is referred to as an undesirable risk, owing solely to the presence of all this inflammable material underneath and in the adjoining sheds, on which latter insurance can not be placed for less than \$40 per \$1,000. This is, I am informed, nearly ten times the rate which would be charged on an ordinary warehouse. The chief danger, however, is not to the sheds themselves or their contents, but to the adjoining collections, which, without reference to their scientific interest but merely to their intrinsic value, represent a very large sum of money."

The result of all this crowding and lack of facility for work is that what is accomplished for public education by the Museum requires unnecessary and unusual effort, and that the fullest results are not realized from the appropriations which are made for this branch of the public service.

Another result is that the value of the collections, the property of the nation, is not increasing as rapidly as it would otherwise do. The amount of valuable material presented and bequeathed to the Museum is not as great as it seemed likely to be a few years ago. Nothing which is offered is refused, but the authorities of the Museum do not feel at liberty to ask for gifts when they can not assure the givers that they can be suitably cared for; and persons having collections to give, being aware of the lack of room, naturally prefer to place their gifts in institutions where there is room to receive them.

Notwithstanding these hindrances to the Museum's progress, the increment from legitimate sources, especially from the various Departments of the Government, which are required by law to deposit their accumulations here, was during the year 1895 about 127,000 specimens. In 1894 the accessions were more numerous, the total exceeding 171,000. This large increase was in part at least due to the fact that a large number of collections were acquired at the close of the World's Fair in Chicago. These were almost without exception collections which had been prepared by foreign exhibitors with the Smithsonian Institution in mind as the ultimate place of deposit.

It would have been possible to have obtained an immense number of specimens on this occasion, but it was deemed proper to refrain from efforts in this direction, not only because of the considerations just referred to but also on account of the desire of the people of Chicago to retain such objects in their own city as a beginning toward a great civic museum which might serve as a permanent memorial of the World's Columbian Exposition. It has always been the policy of the Smithsonian Institution to encourage the development of such institutions throughout the United States, and to assist in developing them, and on this account many proffers

of specimens were declined, with the recommendation that they be offered to the Chicago museum, and, so far as it was possible to do so, the attention of exhibitors who had collections to dispose of was directed toward that institution.

A census of the number of specimens now contained in the various departments of the Museum shows that the total is about 3,500,000, almost all of which have been acquired by gift, in exchange for other specimens, or as an equivalent for publications.

On April 14, 1896, Senator Morrill proposed his bill (Senate No. 698 as amended) as an amendment to the sundry civil bill for 1897, and it was referred to the Committee on Appropriations. He spoke upon the measure in the Senate on April 16, prefacing his remarks as follows:

Mr. President, when the Smithsonian Institution, designed for "the increase and diffusion of knowledge among men," was put into practical operation, it was discovered that a national museum would be a large contributor to the great purpose of the founder, and that the nation was destitute of such an institution. The Smithsonian building accordingly early began to be temporarily crowded with many gifts and objects of rare value, and subsequently a separate building for a museum was found to be indispensable. Patronized as was this collateral enterprise of the Smithsonian by the Government, through many of its Executive Departments, and guided by the Smithsonian Institution in a scientific and educational direction, as well as in the practical diffusion of knowledge, it was sure to become an important but inexpensive institution of public education, with a constantly increasing collection of important materials worthy to be intrusted to the custody of a national museum, where they might be forever preserved and thus increase in value with every succeeding generation.

His closing words were significant and prophetic:

The additional building now earnestly sought will be equal to the preservation and exhibition of a very large amount of accumulated material now unhappily stored away, and will also provide some space for future accumulations that should not longer be neglected.

The agents of great museums abroad are reported to be regularly employed here, with authority to purchase any American curios and antiquities, and in some directions they are supposed to have already obtained better specimens for exhibition than have been left for us to find.

The New World, of which the United States forms so important a part, in its prairies and mountains, hills and forests, with their extensive minerals, rocks and marbles, lakes and rivers, with the animals, game, birds, and fish, the story of the prehistoric race, the legends of the Indian tribes, as well as the notable modern history and life of the present inhabitants, all seem to have distinctive features of their own which belong almost exclusively to the western half of the globe discovered by Columbus. This vast and comparatively ungathered continental field, with its abounding American treasures, should be harvested by our National Museum and not surrendered to the more diligent foreign explorers to adorn and enrich only European museums.

As long as it shall be conducted by the Smithsonian Institution its broad non-partisan reputation as a national museum of the highest character will not be likely ever to be disputed or impeached.

While this additional building, with its additional story and cellar, will more than double the capacity of the present museum, it is probable as the years go by that it will be necessary to keep step with the research, progress, and record of the American people, and as early as 1926, when our population will be not less than 140,000,000,

it may be expected that another and grander building in the rear of the Smithsonian, facing on south B street and connecting the two wings, will be required to mark and illustrate the age.

On April 25, 1896, in the absence of Senator Morrill, Senator George Gray, also a Smithsonian Regent, moved the amendment to the sundry civil bill, saying in support of the measure that—

The Senator from Vermont is one of the Regents of the Smithsonian Institution. I also have the honor to be one of that body, and I know something in that way of the necessities for the building provided for in this amendment. There is a large amount of exceedingly valuable scientific material which is housed there in temporary wooden sheds, exposed to the peril of conflagration, and which would entail if it were destroyed incalculable loss, not only upon the Government of the United States, but upon the scientific world. There are matters there now thus insecurely housed that could not be replaced. We all know what a credit the Smithsonian Institution is to the country and to the science of the country. There is no department of the Government that is better conducted, more conscientiously administered in all of its branches, and from which there are so many benefits, direct and indirect, diffusing themselves among all the people of the country.

The amendment was then agreed to by the Senate, but the House disagreed, and on May 21 the Senate receded from its amendment. Although the bill was again introduced in the Senate at the beginning of the second session of the Fifty-fourth Congress (January 23, 1897), the subject obtained no further consideration.

In 1897 several expedients were suggested for the relief of the national collections, none of which had relation to the contemplated new building. In January of that year inquiries made by the House Committee on Appropriations were replied to by Secretary Langley as follows:

I have delayed this reply till I could consult a trustworthy architect as to whether the walls of the Museum building would bear the additional strain if other stories were added. It appears to be his opinion that the cost of enlarging the present structure by additional height would not be warranted by the result, and that the gain in exhibition space would be largely offset by its loss below from the interference with light.

As regards your inquiry about the building known as the Army Medical Museum, I have to say that this is located at the corner of Seventh and B streets southwest, and covers about 21,000 square feet of ground. The center building on B street is 112 feet in length and 54 feet 8 inches in width, exclusive of ornamental and other projections. It has a basement, and is three full stories in height. A fourth story is over the main entrance on B street. The structure is flanked by two wings on each side, 60 by 131 feet, with basement. The heights of the stories are as follows: Basement, 11 feet; first story, 15 feet; second story, center building, 14 feet, wings, 32 feet; third story, center building, 13 feet; fourth story, center building, extends to the roof. The total floor space, if the floor were completed at the third story, would be nearly 90,000 square feet, including the basement, and though all the building as now arranged is not adapted to museum exhibition purposes, it could be used so as to be a very great help.

At a meeting of the Regents on January 27, 1897, the Secretary announced that he had been asked by the Joint Committee on the

Library what the National Museum had which would serve to decorate the new Library building, whereupon it was resolved—

That in the opinion of the Board of Regents of the Smithsonian Institution it will not be expedient or wise to interfere with the integrity of the National Museum by lending, for the decoration of the Library building, any of the articles or property now in its care.

At a subsequent meeting of the Board, February 1, on the suggestion of Dr. Charles D. Walcott, in his capacity as Director of the U. S. Geological Survey, it was resolved—

That the Board of Regents of the Smithsonian Institution look with favor upon the proposition to establish a museum of practical and industrial geology in the neighborhood of the National Museum.

It has, however, since been arranged that this special feature shall remain a part of the National Museum.

In his report for 1898, as Acting Assistant Secretary in charge of the National Museum, Doctor Walcott discussed as follows the necessity for a new building:

The present National Museum building was erected with the view of covering the largest amount of space with the least outlay of money. In this respect it may be considered a success. It is, in fact, scarcely more than the shadow of such a massive, dignified, and well-finished building as should be the home of the great national collections. There is needed at once a spacious, absolutely fireproof building of several stories, constructed of durable materials, well lighted, modern in equipment and on such a plan that it can be added to as occasion demands in the future. A site for such a building is already owned by the Government; only the building needs to be provided for. What the Capitol building is to the nation, the Library building to the National Library, the Smithsonian building to the Smithsonian Institution, the new museum building should be to the National Museum. * * *

The growth of the U. S. National Museum was rapid under the successful charge of the late Dr. G. Brown Goode. When the character of the building and the funds available for its maintenance are considered, it compares favorably with any modern museum. It has received large collections from the scientific departments of the Government, and through private contribution (with some additions by purchase and exchange), all of which have been accommodated as well as could be in the inadequate laboratories, storerooms, and exhibition space. The galleries just completed have added 16,000 square feet of floor space, which will help to a certain extent to relieve the crowded condition of the exhibition halls and courts below. As an illustration of the present conditions and the necessity for more room, attention is called to the anthropological collections, which illustrate the development and progress of man and his works. If the material now in the possession of the Government in this department should be properly placed on exhibition, it would occupy the entire space in the present Museum building. The great collections in zoology, botany, economic geology, general geology, and paleontology should be entirely removed and placed in a building properly constructed for their study and exhibition.

In the present building there is a great deficiency in laboratory facilities. Curators and assistants are hampered for want of room in which to lay out, arrange, classify, mount, and label specimens. There should also be rooms in which students could bring together and compare various series of objects, and have at hand books and scientific apparatus. The present Museum building contains a few rooms suita-

ble for the purposes mentioned, but the majority have to be used as storerooms, laboratories, and offices, and are therefore too much crowded to serve in any one of these capacities. Owing to the pressure for space, courts, halls, and galleries intended for exhibition purposes, both in the Smithsonian building and in the Museum building, are unavoidably occupied to a considerable extent as laboratories and storerooms. This lack of laboratory space is extremely detrimental to the interests of the Museum.

Beyond six small basement rooms under two of the corner pavilions the present building has absolutely no provision in the way of basement or other rooms for the storage of collections which come in from day to day from Government field collectors or private donors, or such as are separated for distribution or held for the use of students. To remedy this defect many expedients have necessarily been resorted to, such as placing storage cases (faced with mahogany to make them presentable) in the exhibition halls, hiring storage rooms in private buildings, and filling up offices, entrances, staircase landings, and passageways not absolutely indispensable. The ingenuity which has been exercised in this direction by some of the curators is very great, and the annoyances that are daily endured in the interest of preserving the collections deserve notice. What is needed is a series of spacious fireproof basements for the less perishable objects, the collections preserved in alcohol, and the ordinary stores and tools, and equally spacious dry lofts and rooms for those collections and stores which require protection from dampness.

The present Museum building, though large in extent, is overcrowded. It was built with the cheapest materials and under the cheapest system of construction. Its lack of architectural dignity and the indifferent character of the materials of which it is constructed give it the appearance of a temporary structure and tend to cheapen the effect of the really good cases and the very valuable collections which it contains. The visitor is everywhere confronted with rough walls, unfinished ceilings, and obtrusive trusses and supports. It should also be remembered that a considerable portion of the collections are still in the Smithsonian building, where the crowding is scarcely less than in the Museum building.

The following are probably the last published remarks by Senator Morrill on the subject to which so much of his energy had been given. They were made at a meeting of the Board of Regents on January 26, 1898:

As some of you know, I have been urging a new Museum building for about ten years. The bills I have introduced have passed through the Senate several times, but never through the House. I may say now that I shall not live long enough to get the measure completed. It was heretofore contemplated that there should be a Museum building on the west of the Smithsonian building, in a position corresponding with the present Museum building, and these two were to be connected by a building on B street, thus making the largest museum in the country. I have now about decided to abandon that plan and try to secure the building on B street first. I merely state this in order to ascertain whether the change of plan is favored by the Board of Regents.

The suggestion was adopted by the Board, but was subsequently abandoned when the present plans were started.

The report upon the U. S. National Museum for 1901 contains the following condensed account of the condition and requirements of the collections, by the present assistant secretary in charge:

Attention has repeatedly been called to the inadequacy of the present accommodations for the national collections. The Smithsonian building had become fully

occupied some twenty-five years ago, when the large contributions to the Government from exhibitors at the Philadelphia Centennial Exhibition led to the erection of the Museum building, completed in 1881. By 1883 this structure was also filled, and though numerous efforts have since been made to secure more ample quarters, all have met with failure. In 1888, 1890, and 1892 the Senate voted \$500,000 for a new building, and in 1896, \$250,000, but none of these measures was even considered in the House of Representatives.

There has been no abatement in the number of collections received annually, but in fact a general increase from year to year, and a severe task has thus devolved upon the Museum authorities in arranging for their disposition. New specimens have constantly been added to the exhibition halls and storage rooms until both are overcrowded to the extent that in the one the objects, as a rule, can not be properly viewed by visitors, and in the other their classification has become impossible, and they are for the most part practically inaccessible for study. But so extensive have been the accessions that only a part could be disposed of in this manner, and it became necessary, several years ago, to resort to outside storage, which is now provided for in an old wooden shed upon the Mall and in several rented buildings. None of these buildings is of fireproof construction, though they contain collections of great value and in large part not replaceable. They also lack facilities for the classification and arrangement of the specimens, which are packed away in shipping boxes, and for the time serve no purpose of any kind.

The collections made by the Government surveys, of which the Museum is the legal custodian, can continue to be received and housed, as additional storage buildings may be leased, if necessary, though the further provision of the law to make them at all times available for study and examination can no longer be carried out. The same applies to specimens obtained by purchase or exchange and to such donations as are given without condition. The Museum is in fact being resolved into a mere storehouse of material which comes to it mainly without solicitation, and its larger purpose, while never lost sight of, is becoming more and more difficult to maintain. Its reserve or record collections in every branch should be so systematically arranged that any specimens desired for study could immediately be found; the public exhibition should comprise the entire range of Museum subjects, and be installed effectively and without crowding, and there should be ample and well-appointed working quarters, in which all the activities of the establishment could be conveniently carried on.

With the conditions as they now are, it is not to be wondered at that the National Museum lacks that character of support which has done so much for many other museums. Its donations are generally small and relatively unimportant. The possessors of large and valuable collections will not present them where they can not be at once displayed or well arranged. Such inducements can now rarely be offered here, but many of the larger museums elsewhere owe their principal growth to generous gifts from wealthy patrons of science and the arts. Specific mention could be made of several large collections which their owners would have preferred to place at the national capital, but which have been given to or deposited in other museums, because in Washington they would have to be packed away for an indefinite period, at great risk of injury and destruction.

The amount of floor space occupied by the national collections is very much smaller than would appear to the casual visitor. The two main buildings contain, in fact, only 195,486 square feet, to which the outside buildings, mostly rented, add 43,203 square feet, making a total of 238,689 square feet. The latter are partly occupied by workshops, but are mainly used for the gross storage of specimens, and in no case for exhibition or for the arrangement in classified order of the reserve series.

In London the subjects represented by the United States National Museum are distributed among several museums, such as the British Museum, leaving out the

Library, the Victoria and Albert Museum, and the Museum of Practical Geology, which now have an aggregate of 989,388 square feet of floor space, soon to be increased by 400,000 or 500,000 square feet in the new addition to the Victoria and Albert Museum. In Berlin seven of the national museums relating to natural history and the industrial arts possess some 575,000 square feet of area, and the new National History Museum of Vienna has over 350,000 square feet alone. In our own country, the American Museum of Natural History in New York City, which, when completed, will cover a ground area of over 5½ acres, already has 356,800 square feet of floor space available.

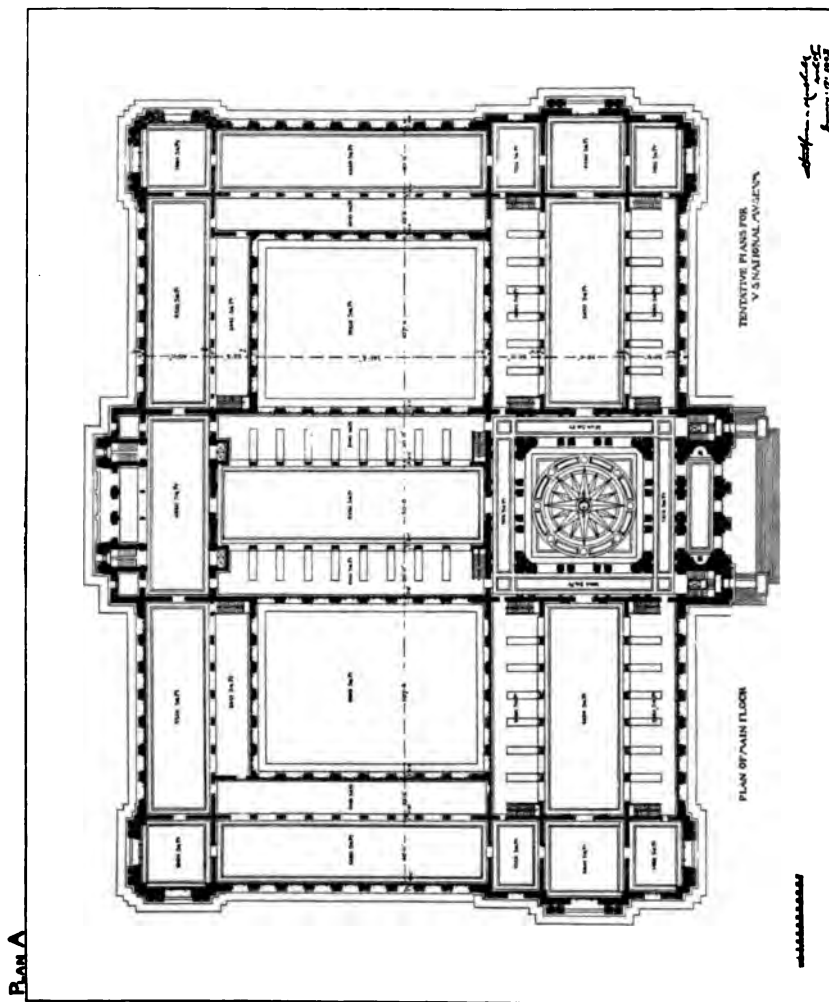
A study of the conditions in Washington has shown that to properly arrange the national collections and provide for the growth of perhaps fifteen or twenty years would require additional floor space to the extent of something like 400,000 or 500,000 square feet. If this were obtained through the construction of a new building having that amount of room, it would still be necessary to utilize both of the present buildings, and this seems the preferable course to pursue.

The efforts of Senator Morrill, though so persistent and well directed, were not to bear their fruit, as he himself had intimated, until after his lamented death, and, in fact, there was to be a lapse of five years before the culmination of his wishes was definitely assured. His large share in the final result must not be forgotten. Four times did he secure a majority vote in the Senate, and his influence in the House is shown by the favorable consideration given his bills by the committees to which they were referred. His part, it is now recognized, was in the direction of educating, of impressing upon Congress the needs of the national collections, which he did by keeping the subject continually alive for over ten years, through the frequent introduction of bills, the presentation of reports in which the requirements of the Museum were set forth in detail, and his own impressive remarks upon the floor. It came, therefore, to be not a question of whether the Museum should have additional and more worthy quarters, but rather one of finance; could the necessary funds, in the opinion of Congress, be granted for the purpose?

Accordingly, the following request, which appeared in the Book of Estimates for 1903, occasioned no surprise:

Plans for additional fireproof building, National Museum: For the preparation, under the direction of the Secretary of the Smithsonian Institution, of preliminary plans for an additional fireproof building for the United States National Museum, to be erected on the Mall between Ninth and Twelfth streets west, including the expense of collecting necessary data, said plans and such recommendations thereon as the Secretary of the Smithsonian Institution may deem necessary to be transmitted to Congress at its next regular session, five thousand dollars, to be immediately available.

Note accompanying estimate.—In 1879 Congress appropriated \$250,000 for the erection of a building to meet the urgent needs of the National Museum. The structure then put up, and completed within the appropriation, was practically only a large storehouse, with few of the facilities demanded by a large museum, and was at the time expected to fill but a temporary want. It has in fact, however, been made to serve a most useful purpose and should continue so to do, but its accommodations have in all respects been long outgrown. By 1885 its exhibition halls and storage



TENTATIVE FLOOR PLAN (A) FOR THE NEW BUILDING FOR THE NATIONAL MUSEUM, SUBMITTED TO CONGRESS ON JANUARY 23, 1903.

rooms were already filled; by 1890 they were in a congested condition. Since then it has been necessary to lease temporary quarters for the incoming collections, these quarters being increased from year to year until they now hold as much in quantity as the Museum building itself. In these places the collections are in constant danger from fire, and being stored in packing cases, are subject to deterioration.

The National Museum is constantly in receipt of large and important collections from private sources, which add to its wealth of treasures. The collections are mainly, however, the product of the Government surveys, obtained at great cost and constituting the material records of all national explorations. They are, therefore, practically not replaceable. All collections from these sources were by Congressional acts of 1846 and 1879 committed to the custody of the Smithsonian Institution, with provision for their scientific classification and arrangement. Under the conditions existing it becomes impossible to carry out either the spirit or the letter of the law. It is recommended that the sum of \$5,000 be appropriated for the preparation of plans for a new Museum building.

Certain tentative sketch plans had previously been prepared, in order to indicate to the Regents the general style and approximate size of a building which it was thought would best meet the requirements. The cost of such a building in stone was estimated at from \$5,000,000 to \$6,000,000. The matter was discussed with the Committees on Appropriations of both Houses of Congress, the Secretary and others appearing before them in support of the measure. A definite sum for the cost of the building had not been fixed, nor were the tentative plans considered as entirely appropriate to be followed. It was explained that the amount named in the estimate was required to permit of a more careful study of the conditions, and that the plans to be prepared would embody only the actual needs. The item was not reported by the House committee, but passed the Senate with a clause limiting the cost of the building to \$2,500,000. In conference, however, this limit was reduced to \$1,500,000, the bill as passed, in connection with the sundry civil act for 1903, being as follows:

Plans for additional building, National Museum: For the preparation, under the direction of the Secretary of the Smithsonian Institution, of preliminary plans for an additional fireproof steel-frame brick and terra cotta building, to cost not exceeding one million five hundred thousand dollars, for the United States National Museum, to be erected, when appropriated for, on the Mall, between Ninth and Twelfth streets west, said plans when completed to be transmitted by the Secretary of the Smithsonian Institution to Congress, five thousand dollars.

The preliminary plans called for by the above act were completed during the following winter and on January 22, 1903, they were presented, together with an explanatory report, to a special committee of the Board of Regents, appointed the previous year, "to represent to Congress the pressing necessity of additional room for the proper exhibition of specimens belonging to the National Museum." This committee, consisting of the six Congressional Regents, namely, Senators O. H. Platt, S. M. Cullom, and F. M. Cockrell, and Representatives R. R. Hitt, Robert Adams, jr., and Hugh A. Dinsmore, after

a full discussion, passed the following resolution, which was subsequently transmitted to Congress:

That under the limitations of the law the committee hereby report to Congress Plan B for a new National Museum building as the best obtainable for the amount mentioned; but in the judgment of the committee the larger plan, A, is believed to be the one which should be adopted, and we therefore ask that Congress shall make the appropriation for it instead of for the smaller plan.

On January 23, 1903, the plans and report were transmitted to Congress and printed as Document No. 314, House of Representatives, Fifty-seventh Congress, second session. The arguments presented in the report have practically all been set forth in previous pages of this paper, and therefore only such extracts need be quoted here as relate to the plans and to the questions directly concerning their preparation. Of the plans themselves only two are given, one, marked "A," showing the outlines of the entire building as then designed, the other, marked "B," showing the half of the building, which it was estimated could be erected for the sum of \$1,500,000, the limit of cost first established. Following are the extracts from the report prepared by the assistant secretary in charge of the Museum:

The plan contemplates a rectangular building about 486 feet front by about 345 feet deep and about 80 feet high including the basement. The building is designed for four floors, and will afford about 400,000 square feet of floor space, the first and second floors to be used for exhibition, the basement and upper floor for storage, workrooms, and other purposes necessary to the conduct of a museum. It could be erected in substantial form as a fireproof building for a sum not exceeding \$3,000,000.

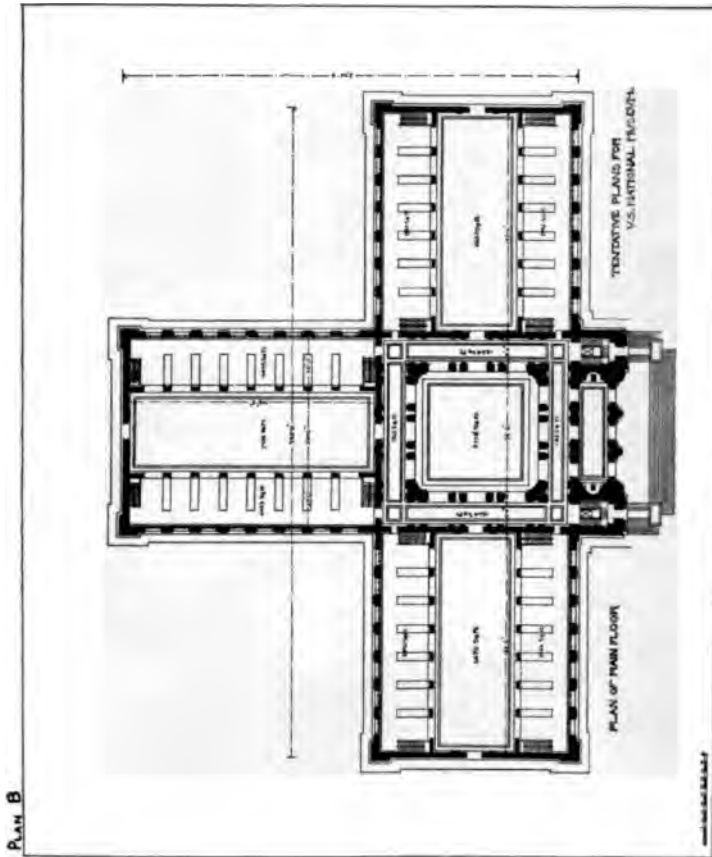
The plan has been designed in such a manner that approximately one-half of the building could be constructed at once, presenting the appearance of a completed building and suitable for the Museum needs. This half would consist of the main or south wing and the middle wing, and is exhibited in a separate drawing. Whilst it would in no way provide for the growth of the Museum, it would relieve the present congested condition of the exhibition halls, render possible a proper classification of the reserve collections, and remove the necessity of employing any rented buildings.

The plan of the building has been drawn after a study of all important existing museums, both in this country and abroad, and embodies their useful features and avoids defects which have been revealed in the course of time. It is expected that, should this building be authorized, it would be superior for museum purposes to any building in this country or abroad, and it is respectfully recommended that the sum of \$1,500,000 be appropriated for the construction of substantially so much of the building as is exhibited in Plan B.

* * * * *

The National Museum occupies the building erected for its use in 1881, the greater part of the Smithsonian building, parts of three detached buildings on the Mall, and several rented buildings south of B street SW. The area represented, together with the general use to which the several floors of the larger buildings and each of the smaller buildings are devoted, is shown in the following table:

Smithsonian building:	Square feet.
Basement (mainly storage and heating plant)	11, 778
Ground floor (mainly exhibition halls)	17, 372
Second floor (mainly workrooms)	6, 587



TENTATIVE FLOOR PLAN (B) FOR THE NEW BUILDING FOR THE NATIONAL MUSEUM,
SUBMITTED TO CONGRESS ON JANUARY 23, 1903.

	Square feet.	
Third floor (mainly exhibition)	10, 889	
Upper part of north tower (workrooms and storage)	2, 617	
East end (offices, shipping rooms, etc.)	2, 755	51, 998
<hr/>		
Museum building:		
Ground floor (exhibition)	74, 209	
Gallery floor (mainly exhibition)	28, 986	
Central towers and pavilions (mainly workrooms, storage, offices, library, etc.)	40, 293	143, 488
<hr/>		
Outside buildings:		
Smithsonian stable (taxidermist's workroom)	615	
Frame building on Smithsonian reservation (taxidermist's and 1 mechanical workshop)	1, 400	
Frame building on Armory Square (storage of specimens)	7, 073	
Buildings at No. 431 Ninth street SW. (rented—storage of speci- mens and property)	21, 129	
Building No. 309 to 313 Tenth street SW. (rented—storage of specimens, preparators' and mechanical workshops)	6, 406	
Building No. 217 Seventh street SW. (rented—carpenter shops). . .	3, 655	
Building in rear of 915 Virginia avenue SW. (rented, paint and glass shop)	2, 925	43, 203
<hr/>		
Total space now occupied		238, 689

The allotments of space by subjects and by departments is as follows:

	Square feet.
By subjects:	
Exhibition	112, 697
Storage of reserve collections, scientific laboratories, and workrooms . . .	75, 468
General and miscellaneous purposes, including mechanical workshops and storage, heating plant, library, lecture hall, public comfort, administrative offices, etc.	50, 524
Total	238, 689
<hr/>	
By departments:	
Anthropology, including ethnology, archaeology, American history, and arts and industries	78, 280
Biology, including zoology and botany	72, 914
Geology, including division of practical geology	36, 971
General and miscellaneous purposes	50, 524
Total	238, 689

An inspection of the several buildings shows conditions which are exceedingly deplorable for the National Museum of a great country. Every branch is seriously hampered by the total inadequacy of the space assigned it, and the proper disposition of specimens long ago became impossible, with the result that year after year valuable collections, often of large size, have had to be packed away in insecure rented buildings, where they are also inaccessible. While the Museum building is not ill adapted to exhibition purposes, it is much too small to serve the present needs. Its halls are overcrowded, the cases being generally placed so near together that two persons can scarcely pass between them and no effective view of their contents can be obtained. An increase in space of one-half to two-thirds at least would be necessary to properly display the present contents of these halls.

Having practically no basement, the only space available for the reserve storage, workrooms, and offices is the small rooms of the central towers and corner pavilions, except that some of the galleries designed for exhibition have from necessity been turned over to these purposes. In these quarters the specimens are packed almost solidly, in cases generally reaching to such a height as to make access to the upper ones extremely inconvenient. The workers have scarcely room in which to place their tables, and there is little space anywhere for the spreading out of specimens for purposes of study and classification or of preparation for exhibition.

In the Smithsonian building, which was originally designed to be used only in small part for museum purposes, the conditions are similar. There are four exhibition halls, three used for zoology and one for prehistoric archaeology. The latter, occupying the entire upper floor of the main building, has, through the loosening and fall of large areas of plaster from the ceiling, been pronounced unsafe and closed to the public until funds can be obtained for its repair and renovation. The large corresponding room on the ground floor has four galleries extending nearly its entire length, which some fifteen years ago were turned into work and storage quarters for several branches of zoology. They are overcrowded with cases and tables and are, moreover, extremely unhealthful places for the assistants stationed there because of the impure air arising from the exhibition floor below.

In the basement is stored the greater part of the valuable alcoholic collection of the Museum, in a series of dark, damp rooms, wholly unsuited to the purpose, and where a great deal of work has to be carried on. The other workrooms and store-rooms in the Smithsonian building, besides two or three small ones on the main floor, are in the north tower, which is utilized for these purposes up to the height of the seventh story. It is scarcely necessary to explain that many of these rooms, all of which are very small, are inconvenient of access, and that specimens can be carried to and from them only with difficulty.

Many of the activities of the Museum and much the greater part of its storage have for a long period had to be provided for in outside buildings, partly on the Mall and partly rented at an annual expense of over \$4,000. The taxidermists are quartered in the upper part of the Smithsonian stable and in a temporary frame structure back of the Smithsonian building. On Armory square, adjoining the Fish Commission building, is an old, dilapidated wooden shed filled with specimens. On Ninth street SW. there is under lease a large area of land covered with wooden sheds containing an immense amount of valuable collections and much other Museum property. The greater part of the so-called Marsh collection of vertebrate fossils, which has been valued at above \$150,000, is still stored in a rented building at Tenth street and Maryland avenue, which also provides space for several preparators' workshops. Two other rented buildings are likewise required to accommodate the extensive carpenter, paint, and glazing shops which are required for the making of furniture and for the repairs about the main buildings.

In order to carry out the purposes for which it exists, the National Museum requires a greatly increased amount of space and that any additional space provided be better adapted to its wants than that now occupied.

For the exhibition collections a connected series of relatively large rooms or halls is needed to permit of the arrangement of the specimens and groups of specimens (many being of considerable size) in such manner as will best adapt them to the comprehension of the public and, by the avoidance of crowding, allow them to be viewed effectively.

The record collections, commonly known as the reserve or study series, comprising the bulk of the material in most departments, while demanding such a convenient disposition as will insure the ready examination of specimens, require relatively less space than the exhibition collections, as they can be much more compactly arranged

in drawers and on shelves. Yet their extent is so great that the question of their accommodation is one of the most important ones for consideration. They have been mainly derived from the Government surveys of the past sixty years and represent a very large expenditure of public money.

For the activities of the Museum are needed many well-lighted and well-appointed rooms to serve as laboratories for classifying collections and for scientific research and as workshops for the preparation of specimens for study and for exhibition. It should be noted in this connection that the Museum is called upon to furnish work-rooms for several of the scientific bureaus, whose collections are partly studied there, and that, by a recent act of Congress, it is incumbent upon the Museum to provide facilities for such students and investigators from any part of the country as may choose to visit it for purposes of research.

Finally, space must be provided for certain general and miscellaneous purposes, such as the mechanical workshops and storerooms, the heating plant, public-comfort rooms, the library, a lecture hall, the administrative offices, etc.

An estimate of the amount of space needed has been reached by a careful consideration of the several requirements as set forth below, namely:

- (1) To relieve the present very congested condition of the exhibition halls.
- (2) To provide for the display of objects now in storage which are suitable and intended for public exhibition.
- (3) Convenient and systematic storage for the vast reserve or record collections, which are now for the most part inaccessible for examination.
- (4) Suitable scientific laboratories, preparators' workshops, etc.
- (5) The mechanical workshops required in making repairs to buildings and in the construction and repair of cases and other furniture and fixtures.
- (6) Offices necessary for administrative and other purposes common to all the branches of the Museum.
- (7) The space required for the heating plant, the library, a lecture hall, public-comfort rooms, and other miscellaneous purposes.
- (8) Provision for future growth. The limitation of cost fixed by the sundry civil appropriation act of June 28, 1902, prevents the carrying out of any extravagant views in this regard; and if the building erected have only the area contemplated by the plans submitted the National Museum will again be crowded and in need of room certainly before the end of another ten years and probably of five years.

The growth of the Museum for a number of years past has been mainly through the receipt of material which by law it must receive and care for. The amount of material declined or diverted elsewhere during the last ten or fifteen years because of the lack of room would have occupied a very large proportion of the present exhibition space and have greatly increased the money value of the collections. The same conditions have prevented the Museum authorities from soliciting large contributions, but with adequate facilities many extensive exhibits can be had for the asking. The department of arts and industries, the more practical side of the Museum, has perhaps suffered most from the lack of accommodations. Large exhibits have had to be removed to storage, and the growth of this most important and striking branch was necessarily stopped some time ago. It should be made here, as it has been in all the larger capitals of the world, one of the most important features of the national collections, and its increase, once stimulated, would go forward rapidly and at relatively small expense, as generous donations might be expected from all quarters.

Using the above topics as a basis for calculations, the amount of space immediately required has been worked out for each of the departments. This information is summarized in the following table, which gives also for each subject the space now occupied. With regard to the present storage areas, it should be borne in mind

that much of the material is now compactly stored in packing boxes, and if transferred to classified storage would spread out over many times the space. The departments named are those under which the Museum is classified for convenience of administration.

Subject.	Space now oc- cupied.	Space re- quired.
Exhibition space:	<i>Sq. feet.</i>	<i>Sq. feet.</i>
Department of anthropology, including ethnology, archaeology, American history, and arts and industries.....	58,790	184,000
Department of biology, including zoology and botany.....	34,005	95,000
Department of geology, including museum of practical geology.....	19,902	74,000
Laboratories, workrooms, and storage:		
Department of anthropology.....	19,490	81,000
Department of biology.....	38,909	110,000
Department of geology.....	17,069	46,000
General and miscellaneous:		
Administrative offices, record files, etc.....	6,506	12,000
Mechanical workshops.....	8,789	15,000
Mechanical and miscellaneous storage.....	12,032	22,000
Library, photographic laboratory, lecture hall, restaurant, public comfort, heating and electrical plant, etc.....	19,056	81,000
Entrances, hallways, etc.....	4,141
Total.....	238,689	670,000

With regard to the space now occupied, there are certain areas which, for various reasons, should be abandoned, namely:

	Square feet.
Rented buildings (area).....	34,115
Outside buildings on the Smithsonian reservation and Armory square, which have been used only as temporary expedients and are for the most part insecure structures (area).....	9,088
Space used for storage and some other purposes in the basement, in the upper part of the north tower, and at the east end of the Smithsonian building, being partly unsuitable and partly inaccessible (area).....	12,885
Total.....	56,088

Deducting this area from the total area now occupied (238,689 square feet) leaves 182,601 square feet as the amount of space now actually available and appropriate for the future needs of the Museum. Again, deducting this amount from the total space named above as required for the Museum (670,000 square feet) leaves approximately 487,000 square feet to be provided for in a new building. The sum named in the sundry civil act of June 28, 1902 (\$1,500,000) as the limit of cost for the proposed new building will not, however, permit of the erection by any method of construction of a building having that amount of space.

Several plans have been drawn in an effort to reconcile the needs of the Museum with the limitation of cost proposed by Congress, but none successfully. The last plan, contemplating the smallest size of building that it has been judged advisable to recommend, is the one herewith presented. It represents a rectangular building, having a frontage of about 486 feet, a depth of about 345 feet, not including projections, and a height above the ground at the front of about 70 feet. There will be two open courts. The building is designed to have four floors, inclusive of the basement (which will underlie the entire structure), and will afford about 400,000 square feet of floor space. The first and second floors are intended to be used for

the public exhibition collections and the basement and upper floor for the reserve or record collections, workrooms, offices, and other general and miscellaneous purposes. This is an approximately equal division of the space between the public halls and the other requirements of the Museum. The plan shows entire simplicity of design, and has been drawn with reference to the use of brick and terra cotta in the construction of the outer faces, although stone could be substituted for these materials if so ordered.

The interior arrangement above the basement is a combination of large and small halls, the three largest halls being lighted from above and having two series of galleries of sufficient width to permit of their being screened off and made into series of separate rooms for exhibition and other purposes. This arrangement has been adopted as practically furnishing the largest possible amount of well-lighted floor space in a building of the size proposed, and as presenting many other important advantages. It is felt that a building put up on these lines would in many, if not in all, respects prove superior for museum purposes to those of any existing museums, either at home or abroad.

The cost of erecting a building in accordance with the plan submitted in a most simple though substantial manner has been estimated at about \$3,000,000. The plan has been so designed, however, that approximately one-half the building can be constructed separately, with practically the appearance of a completed building and suited to the different kinds of museum requirements. This half would consist of the main or south wing and the middle wing, as represented in a separate drawing. While this part would not provide for future growth, it would relieve the present congested condition of the Museum, make outside storage unnecessary, and render possible a safe disposition and essentially convenient arrangement of the present collections.

This half section of the building as planned could be erected for \$1,500,000.

At the hearing before the House Committee on Appropriations, on January 23, 1903, the question of legislation for the new building was thoroughly discussed. It was not doubted that half the building could be erected within the limit of \$1,500,000 fixed by the act of the previous year, and the entire building for not exceeding \$3,000,000, but in either case the fronts would require to be constructed of brick and terra cotta. There was no objection to the use of these materials on the score of durability, but in view of the large size of the building, its conspicuous position, and the fact that it would be expected to rank among the prominent public structures at the capital, it was urged upon the committee that stone fronts would produce a more dignified effect, and that the change in this respect would not add extravagantly to the cost of the building. Estimates showed, in fact, that if stone were employed the entire building could be erected within the sum of \$3,500,000, and one-half the building within \$1,625,000.

The matter was not reported to the House in any form, but in the Senate the granting of the full sum was favorably considered, and the bill as there passed was finally agreed to in conference as an item in the sundry civil act for the year ending June 30, 1904. It is as follows:

Building for National Museum: To enable the Regents of the Smithsonian Institution to commence the erection of a suitable fireproof building with granite fronts, for the use of the National Museum, to be erected on the north side of the Mall, between

Ninth and Twelfth streets northwest, substantially in accordance with the Plan A, prepared and submitted to Congress by the Secretary of the Smithsonian Institution under the provisions of the act approved June twenty-eighth, nineteen hundred and two, two hundred and fifty thousand dollars. Said building complete, including heating and ventilating apparatus and elevators, shall cost not to exceed three million five hundred thousand dollars, and a contract or contracts for its completion is hereby authorized to be entered into subject to appropriations to be made by Congress. The construction shall be in charge of Bernard R. Green, Superintendent of Buildings and Grounds, Library of Congress, who shall make the contracts herein authorized and disburse all appropriations made for the work, and shall receive as full compensation for his services hereunder the sum of two thousand dollars annually in addition to his present salary, to be paid out of said appropriations.

At a meeting of the Board of Regents on March 12, 1903, the passage of the above act was announced, and it was resolved:

That the Secretary, with the advice and consent of the chancellor and the chairman of the executive committee, be authorized to represent the Board of Regents so far as may be necessary in consultation with Bernard R. Green, to whom the construction and contracts for the new Museum building are committed by Congress in the act making an appropriation for that purpose.

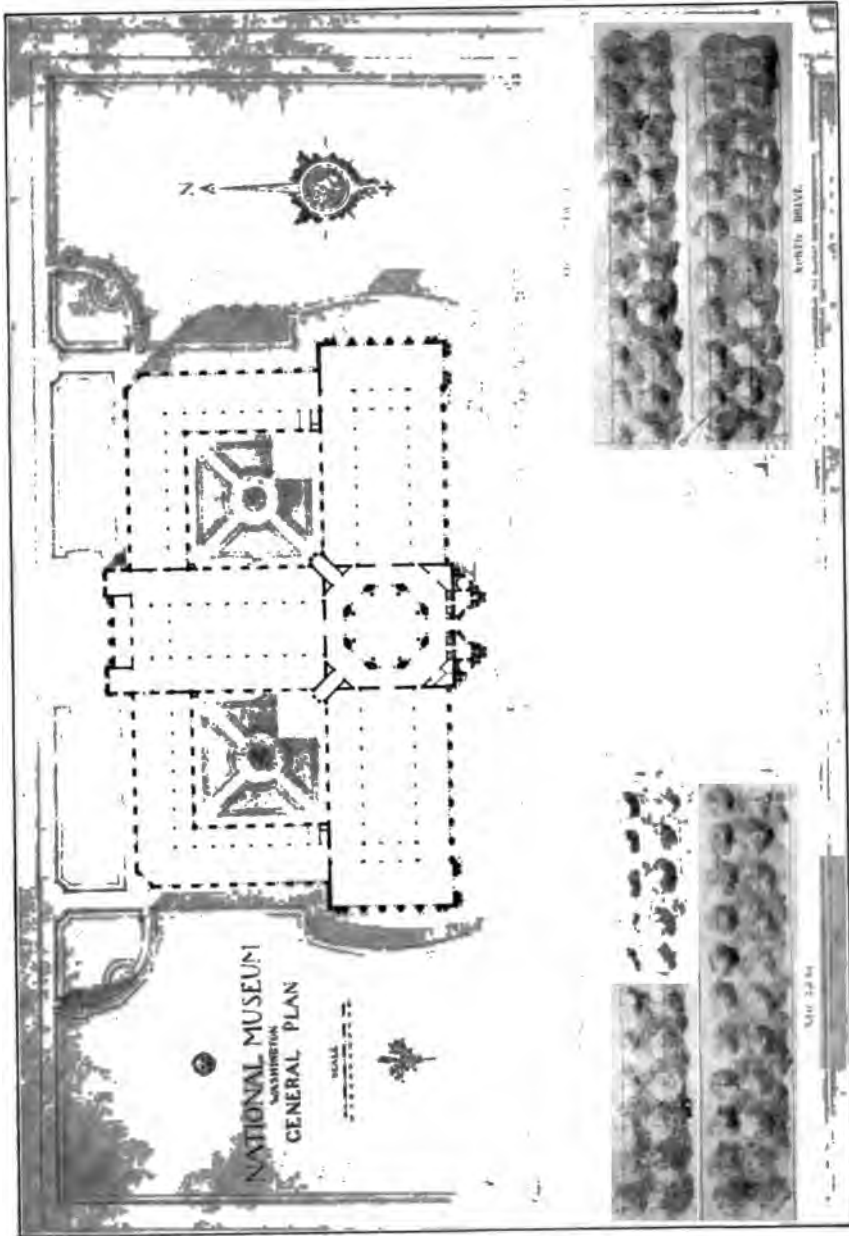
Some little time was consumed in the preliminary arrangements, which included the selection of Messrs. Hornblower & Marshall, of Washington, as the architects of the building. They had made the first tentative sketches and the preliminary plans previously mentioned, and it may also be said that for a number of years they have acted for the Smithsonian Institution and National Museum in all matters requiring architectural advice. They have likewise recently visited many of the prominent museums of Europe, which has given them an invaluable experience in museum requirements.

At the time of writing the general plans, showing the several floors and façades, are nearing completion.

DESCRIPTION.

It is impossible at the present time to describe more than the leading features of this structure, since, though work upon the foundation has begun, the plans are not entirely completed. The building will be rectangular in shape, and faced with granite on all sides. It will have a length of 551 feet, a width of 318 feet, exclusive of projections, and a height of stonework above the basement floor of 77 feet. There will be four stories including the basement, which, beginning above the level of the adjoining street, will be well lighted and entirely available for use. The main and second stories will contain the exhibition collections, while the basement and upper story will be allotted to the many other requirements of a large museum.

In a general way it may be said that the building will consist primarily of a main part in the shape of a broad T, comprising three wide wings or sections diverging at right angles from a large rotunda at the southern or principal entrance. Ranges of narrower width,



FLOOR PLAN OF THE NEW BUILDING FOR THE NATIONAL MUSEUM, WITH APPROACHES AND SURROUNDINGS.

one on each side and two at the north, will connect the three ends of the T or main sections so as to inclose two large open courts (each 128 feet square), and thus complete the quadrangle. The two south sections, which, with the rotunda, comprise the front part of the building, will project slightly at each end beyond the walls of the side ranges.

The new structure will be located on the north side of the Mall, in the so-called Smithsonian Park, about midway between Ninth and Twelfth streets, directly in front of the Smithsonian building, and with its center, like that of the latter, on the axis of Tenth street. While the main front and entrance will face southward, or toward the middle of the park, there will also be a commodious entrance by way of the basement on the north, as an approach from Tenth street. The northern façade will be about 78 feet from the sidewalk of B street north, while the central projection thereof, containing the entrance, will reach about 25 feet nearer to the street.

As the land rises rapidly southward from B street, it has been planned to have the basement floor slightly above the level of that street, but at the south the top of the basement will be nearly on a level with the ground. Suitable embankments will be built along the sides of the building, inclosing a broad area, which will also extend along the south front, thus making the basement equivalent to a full story for at least workroom, laboratory, storage, and heating purposes. Its height will be 14 feet.

The first and second stories, intended for the public, will be 20 feet and 19 feet 5 inches high, respectively. The windows will measure 14 feet 9 inches high in the first and 12 feet high in the second, the corresponding ones in the two stories occupying the same embrasure, though separated by ornamental metal work. These windows will be about $11\frac{1}{2}$ feet wide, and the intervening wall space about 7 feet wide, giving a unit for the installation of exhibits of 18 feet 6 inches.

The third story will be 12 feet in height, with windows about 7 feet high by 5 feet 3 inches wide, thus furnishing ample light for all the requirements of the laboratories and storerooms. In the three main sections of the building there will be still another low story above the last, suitable for the storage of dried specimens.

The relatively small amount appropriated for this large building has demanded simplicity of design and the omission of all extravagant decoration. The lines and proportions have been so well planned, however, that the structure can not fail to be one of great dignity and beauty and a worthy addition to the public buildings in Washington. The granite will be laid in ashlar courses, but the entrances will be worked up with a certain amount of elaborateness. A metal dome, with skylight, will cover the rotunda, and there will also be skylights along the main roofs for lighting the large halls.

The rotunda at the south, or main, entrance will be about 116 feet square, and lighted entirely from above. It will connect directly with the three great halls, which are to be similar in character and of the same length and width, about 209 by 116 feet, all provided with galleries except at the inner ends adjoining the rotunda. The galleries along the sides will be 32 feet wide, leaving an interspace of 50 feet width. This central or open part of the main halls will be 148 feet long and reach to ceiling lights under the skylights, a distance of 60 feet, while the galleries and sides of the first story will receive their light from the large windows of the fronts and courts. The galleries of the second and third floors are intended to be entirely screened off from the central halls and treated as space that can be divided to suit the requirements. The space under the galleries may be treated in the same way or left open, as circumstances may dictate.

The remainder of the building, consisting of the ranges on the east, west, and north, will be 55 feet in interior width and have solid floors, one above the other, their light being entirely obtained from windows.

The main and second floors will, as before stated, be used wholly for the public exhibition collections, while the upper floor will be divided into laboratories and storage rooms for the reserve collections. The basement will have the same dimensions as the first floor, but under the main halls it will require to be lighted artificially. The side areas will be of sufficient width for teams, which may enter the building at both ends of the south front. One of the south wings of the basement will be utilized for the boilers, power plant, mechanical workshops, etc.; the other, as well as the ranges, probably for laboratories and for the storage of specimens in such lines as can best be accommodated there, though some parts of the ranges may be availed of for exhibition purposes.

The northern entrance will be by way of the basement, into a large vestibule with elevators and stairways. There will also be passageways leading in all three directions, the central one communicating directly with a small lecture hall occupying the center of the middle section of the basement. On each side of this hall will be a series of small rooms, some of which can be used for committee meetings.

The net floor area of the building will be about 411,374 square feet, or about 9.44 acres, subdivided as follows: Basement and main floor, each about 116,732 square feet; second and third floors, each about 88,955 square feet.

FLOOR SPACE OCCUPIED BY THE NATIONAL MUSEUM.

The following is a detailed statement of the space occupied by the Museum on January 1, 1904, arranged mainly in explanation of the plans of the two principal existing buildings (Plates 24 and 29). Figures are also given for the outside buildings, but the plans for these are omitted as being unimportant.

NATIONAL MUSEUM BUILDING.

EXHIBITION HALLS AND GALLERIES.^a

North hall.

	Square feet
American history (102 feet 6 inches by 62 feet 4 inches)	6, 388

East hall.

Floor: Technology (102 feet 2 inches by 62 feet 4 inches).....	6, 368
North gallery: Materia medica (75 feet 6 inches by 14 feet)	1, 057
East gallery: Herbarium (38 feet by 7 feet 6 inches).....	282
South gallery: Herbarium (86 feet 6 inches by 13 feet 6 inches)	1, 166
	8, 873

South hall.

Floor: Mammals (102 feet 1 inch by 62 feet 5 inches).....	6, 371
Galleries: Mammals (212 feet 8 inches by 14 feet; 17 feet 3 inches by 11 feet).....	3, 169
	9, 540

West hall.

Floor: Ethnology, Eastern Hemisphere (102 feet 6 inches by 62 feet 4 inches)	6, 388
North gallery: Ethnology, Indo-Pacific region (86 feet 9 inches by 13 feet 9 inches)	1, 194
South gallery: Historic religions (86 feet 9 inches by 13 feet 9 inches) ..	1, 194
West gallery: Historic religions	301
	9, 077

Rotunda.

Floor: American history	2, 516
Galleries: Miscellaneous	600
	3, 116

Northeast court.

Floor: Graphic arts (63 feet 1.5 inches by 62 feet 3 inches).....	3, 929
Galleries: Ceramics (209 feet 9 inches by 10 feet 3 inches)	2, 150
	6, 079

Southeast court.

Floor: Fossil vertebrates (63 feet 1 inch by 63 feet 1 inch)	3, 979
North and east galleries: Fossil invertebrates (105 feet 8 inches by 10 feet 3 inches)	1, 083
South and west galleries: Fossil plants (105 feet 8 inches by 10 feet 3 inches)	1, 083
	6, 145

Southwest court.

Floor: Applied geology (63 feet 1 inch by 63 feet 1 inch)	3, 979
Gallery: Applied geology (211 feet 4 inches by 10 feet 3 inches).....	2, 166
	6, 145

Northwest court.

Floor: Ethnology, Pueblo tribes (63 feet 2 inches by 62 feet 3 inches) .	3, 931
Gallery: Ethnology, Central and South America, Philippine Islands; basketry (209 feet 10 inches by 10 feet 3 inches).....	2, 151
	6, 082

East-north range.

Lecture hall (89 feet 4 inches by 49 feet 7 inches)	4, 429
---	--------

^a Partly used for classified storage and laboratory purposes, as noted.

	Square feet.
<i>Northeast range.</i>	
Floor: Water transportation (63 feet 2 inches by 49 feet 10 inches).....	3, 148
<i>Southeast range.</i>	
Floor: Reptiles and fishes (63 feet 1 inch by 49 feet 11 inches).....	3, 149
Second floor: Herbarium (63 feet 1 inch by 19 feet 6 inches).....	1, 230
Second floor: Biological survey, mammal storage (63 feet 1 inch by 30 feet 5 inches).....	1, 918
	6, 297
<i>East-south range.</i>	
Floor: Comparative anatomy (89 feet 6 inches by 49 feet 10 inches) ..	4, 463
Gallery: Storage, fossil vertebrates and invertebrates (1,394 feet), insects (598 feet), (165 feet 2 inches by 12 feet).....	1, 992
	6, 455
<i>West-south range.</i>	
Floor: Systematic geology (89 feet 6 inches by 49 feet 10 inches).....	4, 463
Gallery: Storage, geology (598 feet), paleobotany (1,394 feet), (165 feet 2 inches by 12 feet).....	1, 992
	6, 455
<i>Southwest range.</i>	
Floor: Minerals and gems (63 feet 1 inch by 49 feet 11 inches).....	3, 149
South gallery: Minerals, storage (37 feet 11 inches by 12 feet).....	455
North and east galleries: Anthropological laboratory (101 feet by 12 feet).....	1, 212
	4, 816
<i>Northwest range.</i>	
Floor: Ethnology, Eskimo and Northwest coast tribes (63 feet 2 inches by 49 feet 10 inches).....	3, 147
Gallery: Library (49 feet 10 inches by 12 feet 3 inches).....	610
	3, 757
<i>West-north range.</i>	
Floor: Ethnology, Eastern and Great Plains tribes (89 feet by 49 feet 7 inches).....	4, 412
South and west galleries: Library (114 feet 5 inches by 12 feet 1 inch) ..	1, 383
East gallery: History, storage (49 feet 7 inches by 12 feet 1 inch)....	598
	6, 393
Total floor and gallery space.....	103, 195

TOWERS AND PAVILIONS.

<i>North tower.</i>	
First floor:	
Main entrance (25 feet 8 inches by 13 feet).....	334
Superintendence, two offices.....	527
Property office.....	250
Captain of the watch.....	133
Stairway.....	126
Second floor:	
Editorial offices.....	404
Biological survey, bird storage.....	860
Third floor:	
Coins and medals.....	129
Telephone exchange.....	129
	2, 892

East tower.

	Square feet.
First floor:	
Entrance	340
Storage of supplies	256
Technology, office	275
Herbarium	256
Restaurant	1,186
Second floor:	
Herbarium	1,062
Third floor:	
Herbarium	378
	3,753

South tower.

First floor:	
Head curator of biology, offices	573
Comparative anatomy, laboratory	275
Invertebrate paleontology, laboratory	523
Second floor:	
Paleobotany, laboratories	845
Invertebrate paleontology, laboratories	253
Third floor:	
Paleobotany, laboratories	260
	2,729

West tower.

First floor:	
Head curator of anthropology, offices	724
Ethnology, laboratories	529
Stairway	133
Second floor:	
Ethnology, laboratories	247
Historic archaeology and religions, laboratory	249
Ethnology, storage	460
Third floor:	
Ethnology, storage	132
Ethnology, laboratory	132
	2,606

Northeast pavilion.

First floor:	
Mammals, laboratories and storage	1,032
Birds' eggs, laboratory and storage	600
Superintendence	30
Stairway	230
Second floor:	
Ethnology, laboratory	189
Materia medica, laboratory	209
Reptiles and batrachians, laboratories and storage	1,206
Stairway	213
Third floor:	
Mammals, storage	1,341
Basement:	
Mammals, storage, alcoholic and dry	1,227
	6,277

<i>Southeast pavilion.</i>		Square feet.
First floor:		
Men's toilet room		524
Women's toilet room		614
Insects, laboratory and storage (Lepidoptera)		900
Stairway		100
Second floor:		
Insects, laboratories and storage	1,183	
Photographic laboratory		558
Stairway		110
Third floor:		
Photographic laboratory	1,440	
Fourth floor:		
Photograph print room		79
		5,508
<i>Southwest pavilion.</i>		
First floor:		
Engineer's office		186
Fossil invertebrates, laboratories and storage		784
Geology, laboratories and storage		864
Stairway		193
Second floor:		
Head curator of geology, offices		397
Geology, laboratories and storeroom	1,210	
Stairway		232
Third floor:		
Mineralogy, laboratory	1,390	
Basement:		
Pump room		169
Boiler room		848
Blacksmith shop		1,026
Fuel vaults		2,436
Stairway		213
		9,948
<i>Northwest pavilion.</i>		
First floor:		
Vestibule and anteroom		414
Administrative assistant, offices		872
Library		929
Second floor:		
Assistant secretary, offices	1,040	
Library		502
Stairway		148
Third floor:		
Office of correspondence and documents	1,320	
Basement:		
Storage, electrotypes of publications		766
Storage, documents		169
Storage, miscellaneous supplies		420
		6,580
Total floor space in towers and pavilions		40,293
Total floor and gallery space		103,195
Total floor space in building		143,488

SMITHSONIAN BUILDING.

PARTS OCCUPIED BY THE NATIONAL MUSEUM

Basement.

	Square feet.
1. (International exchanges.)	
2. (International exchanges.)	
3. Fuel storage	1,021
4. Boiler room	675
5. Machine shop	382
6. Electrical storage and connections	606
7. Toilet room	63
8. (Smithsonian Institution.)	
9. Mechanical storage	358
10. Men's toilet room	384
11. Women's toilet room	353
12. Supplies, storage	423
Corridor between 12 and 14. Fishes, alcoholic storage	270
13. Mollusks, dry and alcoholic storage	460
Corridor between 13 and 15. Marine invertebrates, alcoholic storage ...	270
14. Mollusks, alcoholic storage	695
15. 16, and 17. Marine invertebrates, alcoholic storage	1,498
Corridors between 16, 17, and 18. Fishes, alcoholic storage	626
18. Fishes, alcoholic storage	1,195
19. Birds, dry and alcoholic storage	1,367
20. Fishes, alcoholic storage	1,132

First floor.

21. Main entrance hall	279
22. Office of Superintendence	233
23. Headquarters of the Watch	230
24. Game animals and archaeology, exhibition hall (stairway hall)	742
25. Birds, exhibition hall (200 feet 4 inches by 49 feet 11 inches). (The exhibition cases of mollusks occupy 739 square feet through the center of this hall)	9,992
26. Children's room, exhibition hall (25 feet 4 inches by 22 feet 8 inches) ...	574
27. Insects, exhibition hall (60 feet by 37 feet)	2,220
28. Fishes, laboratory	378
29. Marine invertebrates, laboratory	227
30. Marine invertebrates, exhibition hall (66 feet 7 inches by 34 feet 9 inches)	2,497

Second floor.

31 and 32. Mollusks, laboratory, and storage, two main galleries and one end gallery	2,541
33. Birds, laboratory, and storage, one main gallery and one end gallery	1,325
34. Marine invertebrates, laboratory, and storage, one main gallery	1,216
35. (Smithsonian Institution, storage of instruments.)	
36. Office, exposition archives	97
37. Birds, laboratory	233
38. Marine invertebrates, laboratory	325

^a The numbers refer to the floor plans of the building (Plates 28 and 29), exclusive of the eastern end, which is mostly used by the Smithsonian Institution for administrative purposes, the library, exchange service, etc.

	Square feet.
39. Biological laboratory.....	233
40. Fishes, storage.....	617

Third floor.

41. Prehistoric archaeology, exhibition hall (200 feet by 49 feet 7 inches)....	9,916
42. (Smithsonian Institution, former Regents' room.)	
43. Prehistoric archaeology, storage.....	198
44, 45, and 46. Prehistoric archaeology, laboratory.....	775

North tower, upper floors.

47-53, and 56. Mollusks, laboratories, and storage.....	1,372
54 and 55. Marine invertebrates, storage.....	266
57-62. These rooms constitute the five upper stories of the north tower and are not occupied.....	979

South tower, upper floors.

The floors above the old Regents' room are used by the Institution mainly for the storage of publications.

East end.^a

63. Registrar's office and files.....	424
64. Shipping office.....	287
65. Disbursing office.....	471
66. Registrar's storage (basement).....	865
67. Documents, storage, and shipping rooms.....	708
Total floor space in Smithsonian.....	51,998

OUTSIDE BUILDINGS.

Frame building on reservation south of Smithsonian building.

	Square feet.
Mammal taxidermists' workroom.....	1,060
Tin shop.....	340
Total.....	1,400

Natural History Laboratory on reservation west of Smithsonian building.

Bird taxidermists' workroom, second floor.....	615
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Frame shed on Armory square adjacent to Bureau of Fisheries (entirely used for storage).

	Square feet.
Anthropology:	
Ethnology.....	490
Fisheries exhibit.....	4,215
Technology.....	745
American history.....	112
	5,562
Biology:	
Mammals.....	1,318
Geology:	
Minerals.....	193
Total.....	7,073
Three buildings on Smithsonian and Armory reservations.....	9,088

^a These numbers are not given on the plans.

Buildings at 431 Ninth street SW. (rented). (One brick building, several frame sheds, and a large uncovered area entirely used for storage.)

	Square feet.
Anthropology:	
Ethnology	5,507
Technology	811
Water transportation	122
American history	60
	6,500
Biology:	
Mammals	2,010
Birds	500
Comparative anatomy	1,110
Samples of woods	122
	3,742
Geology:	
Economic geology	542
Minerals	535
Fossil vertebrates	1,024
Fossil invertebrates	813
Fossil plants	542
	3,456
Superintendence:	
Cases, tools, etc	6,986
Miscellaneous supplies	445
	21,120

Building at Tenth street and Maryland avenue SW. (rented).

Anthropology:	
Ethnology, workroom	937
Ethnology, storage	165
	1,102
Biology:	
Comparative anatomy, workroom	706
Comparative anatomy, storage	216
	922
Geology:	
Economic geology, workroom	305
Economic geology, storage	165
Fossil vertebrates, workroom	1,166
Fossil vertebrates, storage	1,417
	3,053
Label office	729
Heating and power plant	600
	6,406

Building at 217 Seventh street SW. (rented).

Carpenter shop on all three floors	3,387
Anthropological workroom (model making)	268
	3,655

Building in rear of 915 Virginia avenue SW. (rented).

Paint and glass shop, two floors	2,925
Total rented buildings	34,115

TOTAL FLOOR AREA OCCUPIED BY THE UNITED STATES NATIONAL MUSEUM.

	Square feet.
Museum building	143,488
Smithsonian building.....	51,998
Three buildings on Smithsonian and Armory reservations.....	9,088
Rented buildings.....	34,115
Total	238,689

U. S. NATIONAL MUSEUM.

ALLOTMENTS OF SPACE, ARRANGED BY SUBJECTS, JANUARY 1, 1904.

DEPARTMENT OF ANTHROPOLOGY.

Exhibition halls.

Ethnology:	Square feet
Eastern and Great Plains tribes	4,412
Pueblo tribes	3,931
Eskimo and Northwestern tribes	3,147
Central and South America	1,076
Eastern Hemisphere.....	4,851
Indo-Pacific region	1,194
Philippine Islands.....	537
Basketry	538
	19,686
Historic archeology	1,537
Prehistoric archeology.....	9,916
Technology	6,368
Water transportation	3,148
Graphic arts	3,929
Ceramics	2,150
Materia medica	1,057
Religions	1,495
American history	8,904
Miscellaneous (rotunda galleries)	600

Offices, laboratories, workrooms, and storage.

Office of Head Curator.....	724
Laboratories and classified storage:	
Ethnology.....	2,580
Historic archeology and religions.....	249
Prehistoric archeology	973
Technology	275
Materia medica	209
American history	727
	5,013
Preparators' workrooms	1,526
Gross storage:	
Ethnology.....	6,162
Technology	5,771
Water transportation	122
American history	172
	12,227
Total for anthropology	78,280

DEPARTMENT OF BIOLOGY.

Exhibition halls.

	Square feet.
Mammals	9,540
Birds	9,253
Reptiles and fishes	3,149
Insects	2,220
Mollusks	739
Other marine invertebrates	2,497
Comparative anatomy	4,463
Game animals	742
Children's room	574
	33,177

Offices, laboratories, workrooms, and storage.

Offices of Head Curator	573
Laboratories and classified storage:	
Mammals	5,518
Birds	3,532
Birds' eggs	600
Reptiles and batrachians	1,206
Fishes	4,451
Insects	2,681
Mollusks	5,068
Other marine invertebrates	3,802
Comparative anatomy	275
Herbarium	4,374
	31,507
Preparators' workrooms:	
Mammal taxidermists	1,060
Bird taxidermists	615
Comparative anatomy	706
	2,381
Gross storage:	
Mammals	3,328
Birds	500
Comparative anatomy	1,328
Plants	122
	5,276
Total for biology	72,914

DEPARTMENT OF GEOLOGY.

Exhibition halls.

Systematic geology	4,463
Applied geology	6,145
Mineralogy	3,149
Vertebrate fossils	3,979
Invertebrate fossils	1,083
Fossil plants	1,083
	19,902

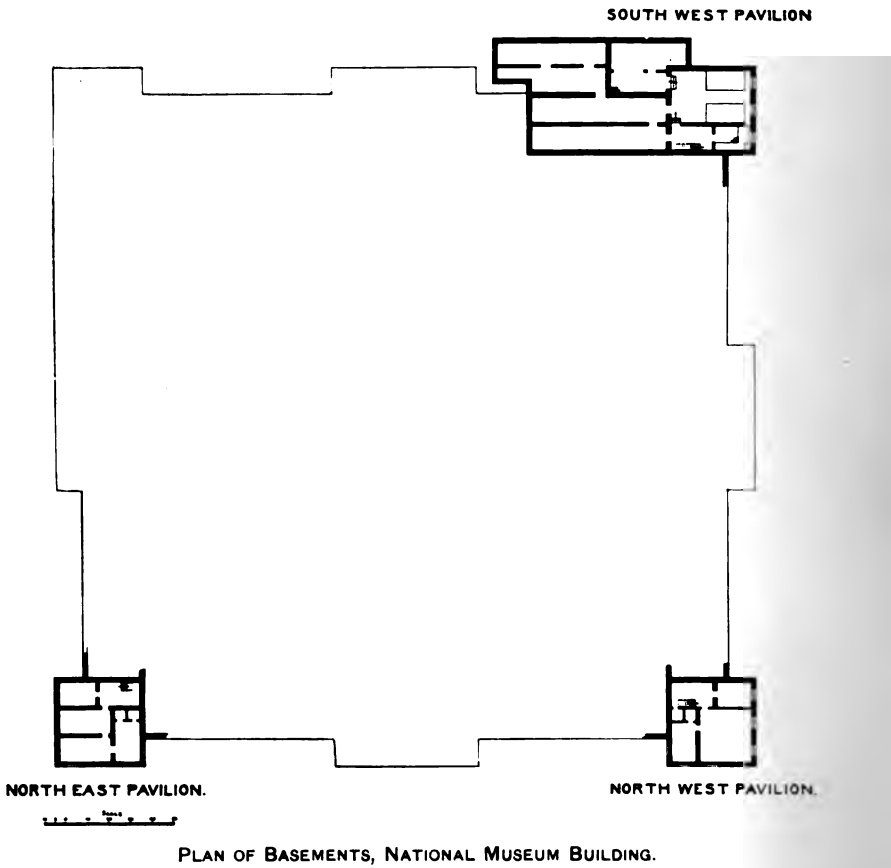
Offices, laboratories, workrooms, and storage.

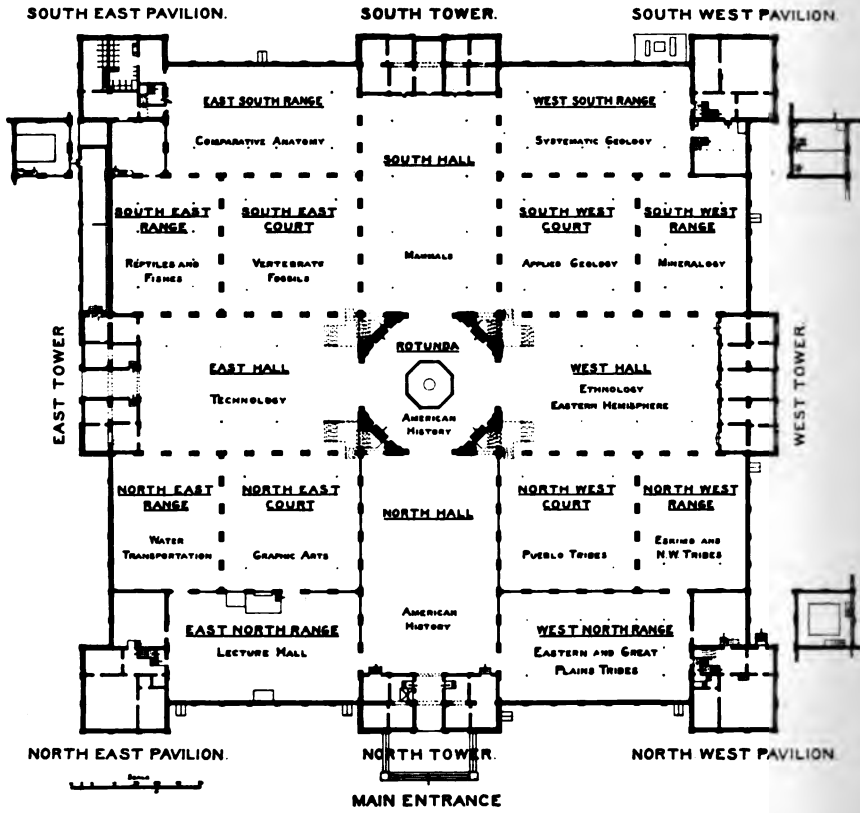
	Square feet.
Office of Head Curator.....	397
Laboratories and classified storage:	
General geology.....	2, 672
Minerals.....	1, 845
Fossil vertebrates.....	1, 394
Fossil invertebrates.....	1, 560
Fossil plants.....	2, 409
	<u>9, 970</u>
Preparators' workrooms:	
General geology.....	305
Fossil vertebrates.....	1, 106
	<u>1, 471</u>
Gross storage:	
General geology.....	707
Minerals.....	728
Fossil vertebrates.....	2, 441
Fossil invertebrates.....	813
Fossil plants.....	542
	<u>5, 231</u>
Total for geology.....	<u>36, 971</u>

ADMINISTRATION, GENERAL WORKSHOPS AND STORAGE, AND MISCELLANEOUS.

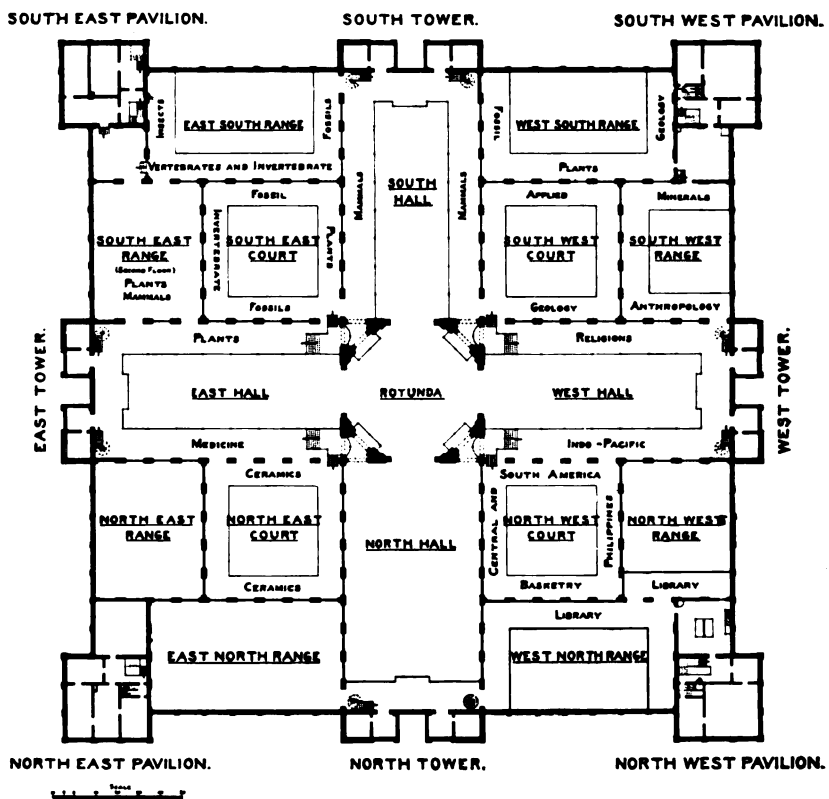
Offices:	
Assistant Secretary in charge.....	1, 040
Administrative assistant.....	872
Correspondence and documents.....	1, 320
Superintendence.....	760
Disbursing officer.....	471
Registration.....	424
Shipping.....	287
Property.....	250
Editorial.....	404
Engineer.....	186
Watch headquarters.....	363
Telephone exchange.....	129
	<u>6, 506</u>
Library.....	3, 677
Photographic laboratory.....	2, 077
Lecture hall.....	4, 429
Restaurant.....	1, 186
Toilet rooms.....	1, 938
Heating plants:	
Boiler room (Museum).....	1, 017
•Fuel storage (Museum).....	2, 436
Boiler room (Smithsonian).....	675
Fuel storage (Smithsonian).....	1, 021
Tenth street building.....	600
	<u>5, 749</u>



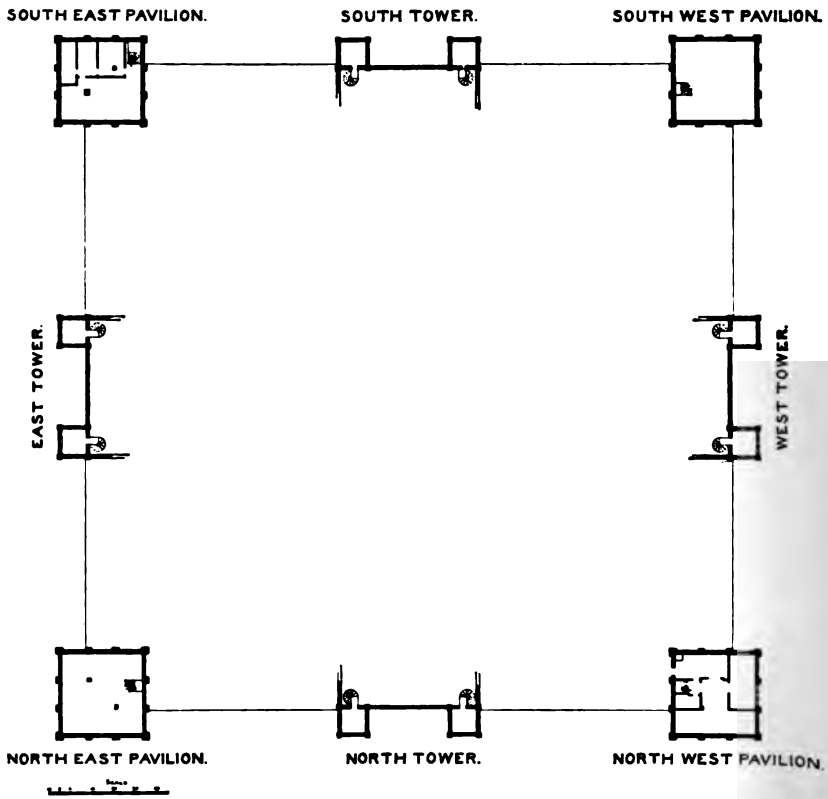




PLAN OF MAIN FLOOR, NATIONAL MUSEUM BUILDING.



PLAN OF GALLERY AND SECOND FLOOR, NATIONAL MUSEUM BUILDING.



PLAN OF THIRD FLOOR, NATIONAL MUSEUM BUILDING.

